FT-726R

TECHNICAL SUPPLEMENT

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FT–726R
TECHNICAL SUPPLEMENT

This manual is intended to serve as a technical supplement to the FT-726R Operating Manual. Detailed information regarding functions, installation, interconnections, operation, and installation of options has been provided in the Operating Manual, and is not reprinted herein. Therefore, this Technical Supplement is not intended to serve as an independent reference, but to be used in conjunction with the information provided in the Operating Manual.

Because there are over seven hundred semiconductor devices in the fully equipped FT-726R, circuit description information is provided in the form of numerous block diagrams and a complete Component Applications list. It is our hope that this manner of providing functional information will prove to be more convenient for the owner and technician than would a lengthy verbal description. Those readers who are not familiar with the basic types of analog and digital circuits that serve as the building blocks of the FT-726R are encouraged to study instructional material, such as that contained in handbooks on amateur radio and digital circuit design, before attempting to understand the design of the FT-726R. Each block in the block diagrams represents one such basic circuit, while the Component Applications list provides additional details for each semiconductor. Specific circuit details are provided in the schematic diagrams.

While we believe this technical information is correct and factual, Yaesu assumes no liability for damage that may result from typographical or other errors that may be present. Your cooperation in pointing out any inconsistencies in the technical information would be appreciated.

Yaesu Musen reserves the right to make changes in the circuitry of this transceiver, in the interest of technological improvement, without notification of the owner.

ERRATA FOR THE FT–726R OPERATING MANUAL

These corrections apply to early printings of the Operating Manual. Many have been included in later printings, but those manuals with edition numbers up to and including E3830183A (8307-D) should be corrected. The edition number is printed at the bottom of the rear cover of the manual.

Pages 2 and 3, Specifications:

The specifications for the 10–15m Module have been added in later printings, as follows:

10–15m Module Specifications

Frequency coverage:
21–21.49998 MHz
24.5–24.99998 MHz
28.0–29.99998 MHz

Repeater shifts:
±100 kHz for 28 MHz

Power input.
10–15m: 30W PEP/DC for 10W out

Spurious radiation:
10–15m: Better than −40 dB

Frequency stability:
10–15m: Better than ±10 ppm

Sensitivity:
10–15m SSB/CW
Less than 0.3 μV for 10 dB (S+N)/N
10m FM
Less than 0.7 μV for 12 dB SINAD

IF frequencies:
10–15m: 46.255 MHz
10.810 MHz
10.750 MHz
455 kHz

Channel steps:
SSB, CW: 20/200 Hz
FM: 10/20 kHz

Page 10, Meter I:

The first printing of the manual stated in this paragraph that Meter I indicates RF power output in watts. This should be corrected to relative forward power, with a deflection of "8" corresponding to 10W RF output into a 50-ohm resistive load.

Page 11, BURST

This paragraph describing the switch of the same name on the top panel has been amended to reflect the CW sidetone disable feature that has been added to this switch in later model transceivers: "when this switch is OFF, the CW sidetone is disabled to allow for easy searching for the downlink signal during CW operation through a satellite."

Page 20, Step 5.

This paragraph has been amended to incorporate the correction on page 10, and should read,

"5. For simplex operation, simply press the PTT switch on the microphone to transmit on the same frequency. Advance the DRIVE control clockwise until the PO indication on Meter I just ceases to increase, while the ALC indication on Meter II remains in the safe ALC zone. Then advance the MIC GAIN while speaking into the microphone with a normal voice, to the point where the green BUSY LED flickers with speech. When adjusting the DRIVE control, PO deflection depends on the antenna impedance, and will be "8" for a 50-ohm resistive load. If the PO reading is less than "5", the antenna is probably mismatched."

Page 23, Step 2.

The fourth sentence, beginning with, "Of course, when the optional tone squelch . . ." should be deleted, if present.

Page 24, Step 5

Within the two double quotation marks in the fourth line from the bottom of the page, a backwards "C" should be printed, as it would appear on the digital display.

Page 25, second column

The following sentence has been added to the end of the first paragraph, "During CW operation, the BURST/TONE switch on the top cover may be set to the OFF position to disable the sidetone, allowing easy location of the carrier on the downlink."

Page 28, Step 5.

The numbers of the lowest set of jacks should be J_{3007}, J_{3008} and J_{3009}, instead of J_{3013}, J_{3014} and J_{3015}, as appeared in the first printing of the manual. Also, in later printings, the numbers of all nine jacks have been added to the diagram of the AF Unit below the text, with J_{3010}, J_{3011} and J_{3012} marked on the middle set of jacks, from left to right, and J_{3007}, J_{3008} and J_{3009} in the lower Default position.

Page 34, TX Unit Schematic Diagram:

The three 2SA733Q transistors at the lower left corner should be Q_{19}, Q_{21} and Q_{22}. Q_{19} was misprinted to appear as Q_{13}.

Also on this diagram, near quad AND gate IC Q_{35} at the lower right, The diode below diode D_{43} should be labelled D_{44}. It was misprinted as D_{04}.

Page 35, RX Unit Schematic Diagram:

The type 2SC945P transistor near the upper right corner that is labelled as Q_{30} should be labelled Q_{32}. Q_{30} is the type 2SC1815GR transistor between Q_{29} and Q_{31} below Q_{32}.

Page 37, 6m Module Schematic Diagrams:

In the RF Unit diagram, the collector of Q_{09} should be shown connected to the junction of C_{88} and R_{52}, in addition to the connections shown.

In the PLL Unit diagram, the crystal oscillator transistor near the lower left should be labelled Q_{6020} (2SC945P). Also in this diagram, at the lower right, D_{20}, D_{22}, D_{24} and D_{26} should be deleted.

Page 38, 2m Module Schematic Diagrams:

In the PLL Unit diagram, diodes D_{21} and D_{22} at the lower right should be removed. Also, it should be indicated that all part location numbers on this unit are preceded by the number 6.

Page 39, 70cm Module Schematic Diagrams:

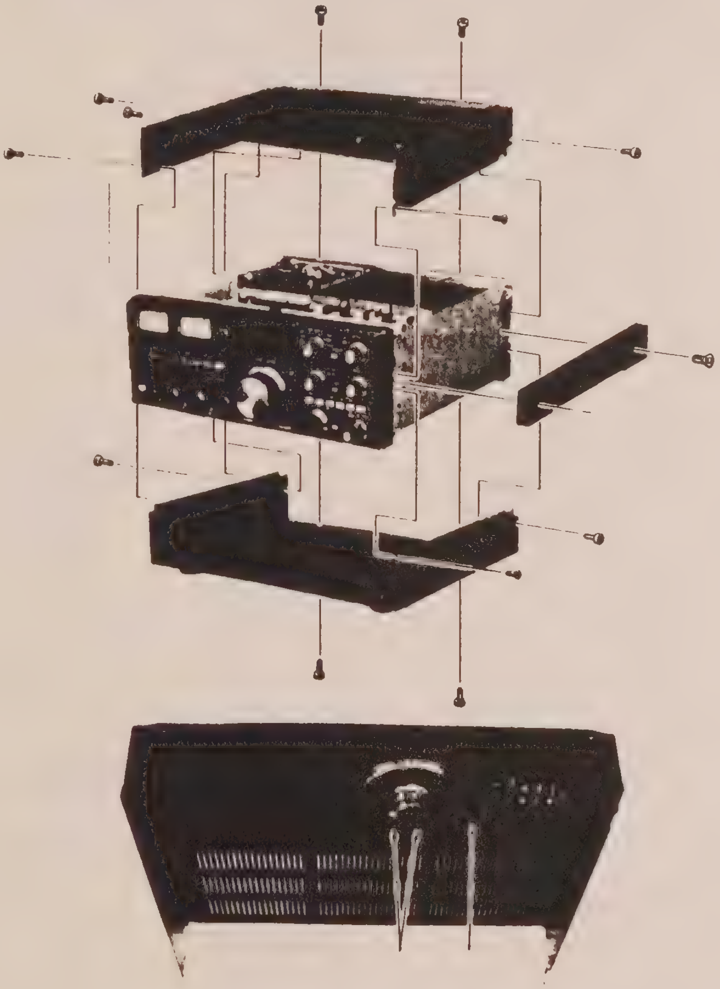
In the 70cm Power Amp Unit diagram at the upper left, diode D_{02} should be shown with the anode connected to ground.

In the PLL Unit diagram, the test point immediately beneath pins 1 and 2 of Q_{23} in the lower center of the diagram should be labelled TP_{07}, and diode D_{20} should be removed from the right side of the diagram.

Block Diagrams:

Numerous corrections have been made to the block diagrams printed at the end of the Operating Manual. These corrections have been incorporated into the block diagrams on pages 74, 75 and 76 of the Technical Supplement.

TOP AND BOTTOM COVER REMOVAL



Note:

When removing the top cover, disconnect the cables to the speaker and SCAN/SQL Unit before pulling the cover away.

Remember to reconnect these cables when replacing the cover.

SOLDERING AND DESOLDERING TECHNIQUE

SOLDERING AND DESOLDERING TECHNIQUE ON PRINTED CIRCUIT BOARDS

The FT-726R circuit boards are tough, but mishandling during soldering can cause circuit traces to "lift." While this does not cause permanent damage to the board, much servicing trouble can result, because of the tendency for this lifted trace to break. A few simple precautions will keep your circuit boards in A-1 condition.

1. Use only a 12 to 30-watt chisel-tip soldering iron, with the tip grounded or isolated from AC and DC potential. Voltage at the tip can easily destroy CMOS components.

2. Use only the minimum amount of heat necessary to remove a component, or to cause the solder to "flow" when installing a new component.

3. USE ONLY 60/40 ROSIN CORE SOLDER.

4. Use solder removing braid and flux to absorb excess solder before installing a new component. A solder sucker can also be used, but most be handled with care to avoid lifting traces.

5. Do not attempt to remove DIP ICs without first cutting all of the pins on the component side of the board, unless you have the correct desoldering equipment (spring-loaded clamp and all-pin desoldering tip).

   If you do lift a trace, don't worry! Read on to find out how to repair traces like a pro.

NOTES ON USE OF CMOS COMPONENTS:

As CMOS devices are extremely sensitive to damage from static electricity, special precautions must be observed.

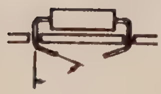
In storage, use only conductive sponge specially designed for CMOS components.

When installing a CMOS part in a socket, or on a circuit board, be certain that the power is off. In addition, the technician should rest his hand on the chassis as the component is inserted, so as to place his hand at the same potential as the chassis (better to discharge small amounts of static electricity through your fingers than through a $5 IC !).

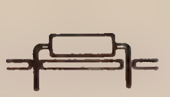
When soldering a CMOS part onto a circuit board, use a low-wattage iron, and be sure to ground the tip with a clip lead, if the tip is not grounded through a three-wire power cord.

INSERTION OF PARTS ON CIRCUIT BOARDS

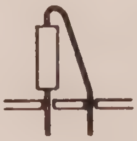
All of the below are acceptable ways of inserting components into circuit board mounting holes.



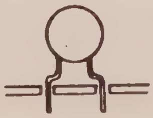
(a) Bend leads slightly



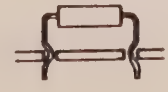
(b) Straight-in mounting



(c) Vertical mounting

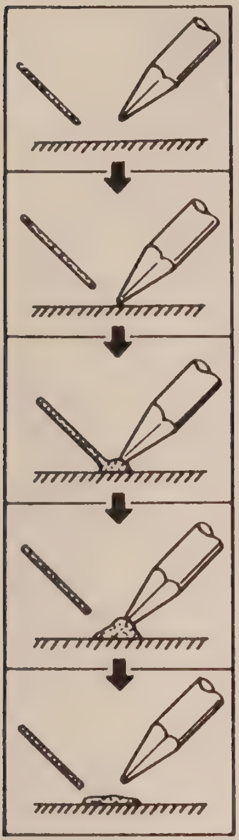


(d) Preformed disc ceramic capacitor



(e) Preformed resistor, diode, etc.

BASIC SOLDERING PRACTICE



(1) Prepare soldering iron and solder. The tip of the iron should be thoroughly tinned and wiped clean of excess solder.

(2) Apply soldering iron to surface to be soldered. Do not press the iron into the surface.

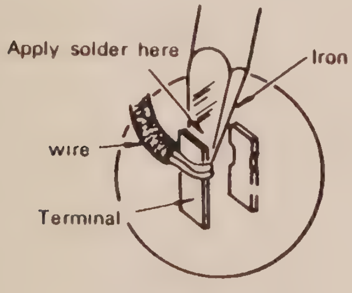
(3) Apply solder to junction of iron and heated surface.

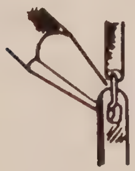
(4) When enough solder is applied, remove solder. Continue to apply heat just until solder flows cleanly.

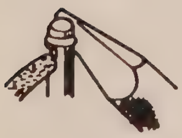
(5) Remove iron from work. Do not apply more heat than necessary for good solder flow.

Soldering to terminal posts:

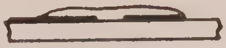
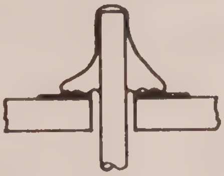
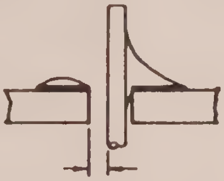
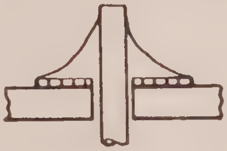
(Be certain to apply heat to both post and wire.)





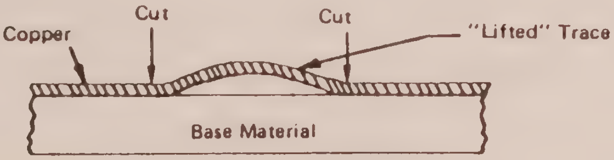


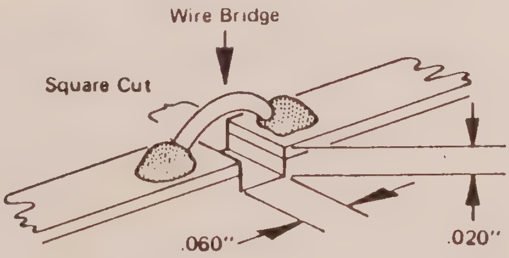
EXAMPLES OF POOR SOLDERING PRACTICE

Unwanted solder bridge connecting two tracks (caused by use of too much solder)	
"Cold joint" (caused by insufficient heat to part of work, resulting in poor solder flow)	
Unstable joint (caused by insufficient heat or solder)	
Proper soldering: A smooth fillet of solder surrounds the lead and just covers the foil pad.	

Repair of a "lifted" trace:

If you have previously lifted a trace, make an etch cut on each side of the lifted trace as shown in the drawing, and install a wire bridge.

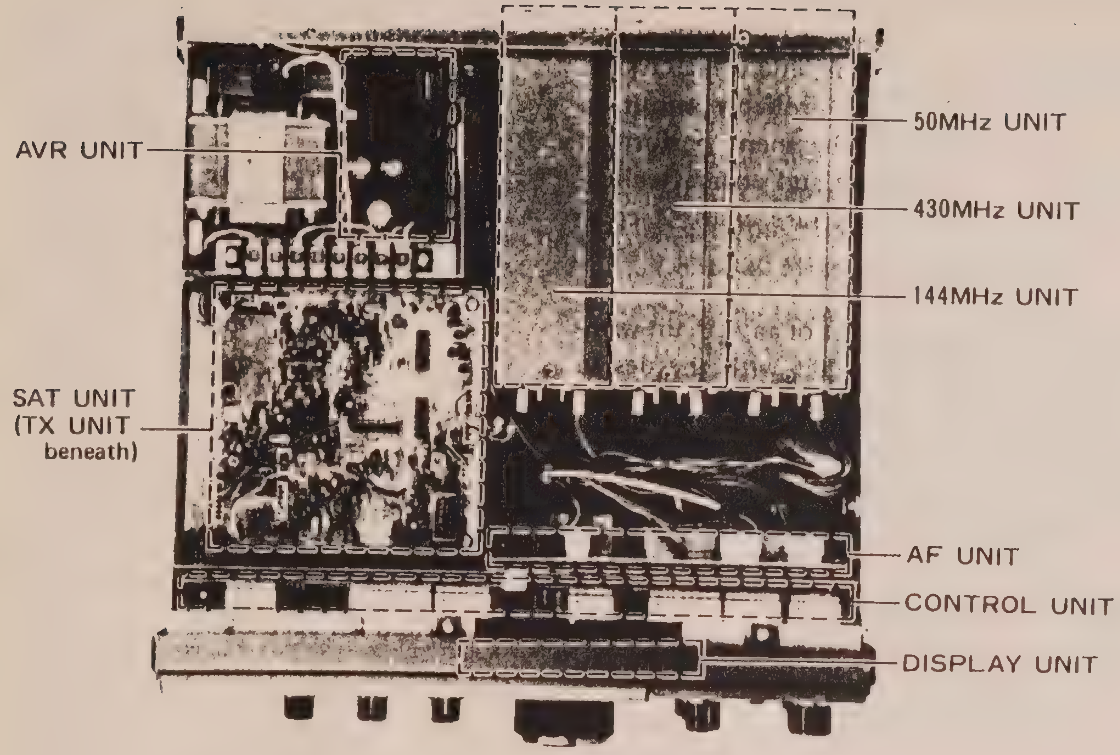




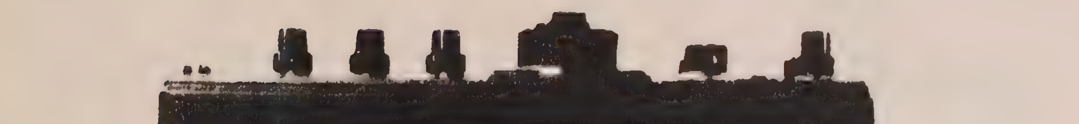
Coat Cut Area With Eastman 910
After Soldering Wire Bridge

TYPICAL PART FAILURES, CAUSES AND SYMPTOMS

PARTS	CAUSE OF TROUBLE	SYMPTOMS
Semiconductors (IC, FET, TR)	High supply voltage Open circuit Excessive drive High temperature	Short or open circuit Output decreases to 1/2 at 80°C Internal noise Instability
MOS FET MOS IC	Static electricity	Total failure Short or open circuit
Crystal Crystal filter	Shock High temperature Aging	No oscillation Off frequency Frequency drift Filter bandpass change
Resistor	Excessive power High temperature	Component burned Value changed Open circuit
Potentiometer	Excessive power Shock Dust or oil Wear	Component burned Open circuit Noise Unsmooth rotation
Capacitor	Excess voltage High temperature Aging	Shorted Leakage Open/decreased capacitance
Variable capacitor Trimmer capacitor	Ratings exceeded Dust between plates Shock, forced rotation	Shorted Leakage Unsmooth rotation
Coils	Ratings exceeded Misadjusted Core or bobbin broken	Open or short circuit Leakage or shorted turns Detuned
Switch	Ratings exceeded Aging Dust or oil	Poor contact Unsmooth operation Open circuit
Relay	Ratings exceeded Humidity Dust or oil on contacts	Coil open Poor or intermittent contact Noise



TOP VIEW



BOTTOM VIEW

SERVICE AND ALIGNMENT

Under normal operating conditions, the FT-726R may require realignment every few years, because of normal component aging. Such realignment should not require more than a very slight adjustment of the coils and trimmers, and a major shift in an adjustment point will probably result in misalignment. The original alignment performed at the factory is very precise, and coarse realignment will only be required in rare cases of component replacement.

Do not attempt any realignment of any circuit without first becoming fully familiar with the design and function of the entire transceiver. Many adjustments interact, and performance can be impaired by attempts to make random adjustments, or to align the transceiver without the proper test equipment and understanding of its use. If the equipment is not available, or if the circuitry is not clearly understood, please contact your Yaesu dealer for instructions on where to send the transceiver for realignment or servicing.

All alignment steps involving transmission require the connection of a 50-ohm non-reactive dummy load to the ANT jack of the appropriate Band Module, unless otherwise noted. The 144 MHz Module is used for all steps, unless otherwise noted.

Test Equipment:

Spectrum analyzer with coverage to 500 MHz

RF signal generator with coverage to 500 MHz, calibrated output and modulation

RF voltmeter ranging from 5 mV to 3V, with 5% accuracy to 500 MHz

Frequency counter with 0.1 ppm accuracy to 500 MHz

DC voltmeter with at least 10 Megohms impedance

In-line wattmeter accurate to 500 MHz

50-ohm non-reactive dummy load (15W)

FM Deviation meter and SINAD meter

Sampling coupler "T" (branch attenuator)

AF signal generator with adjustable output from 0.5 to 100 mV

AF voltmeter

Monitor receiver (SSB) covering the amateur bands of interest

Sweep generator covering 20–30 MHz

DC milliammeter

Oscilloscope

Preliminary Procedure

Alignment must be performed in a temperature-stable environment where the ambient temperature is between 20°C and 30°C. If the transceiver is brought from a different environment, allow at least one hour for the transceiver temperature to stabilize before applying power.

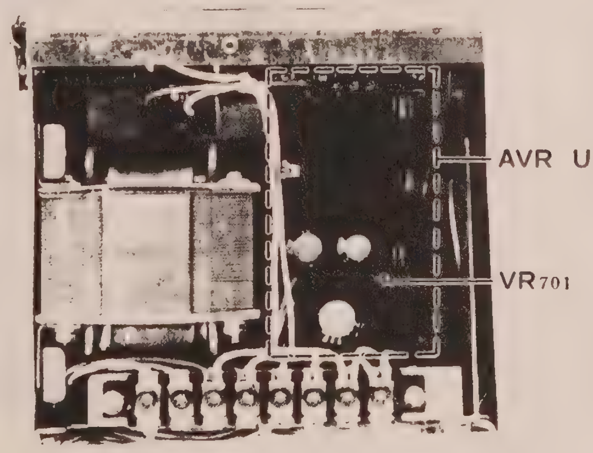
Once power is applied, allow at least five minutes for the oscillators to stabilize. Also, make sure that the test equipment is given the warmup time required for each item.

Alignment of the PLL VCVs (Varactor Contro Voltages) require that the shield covers of the PLLs be in place. Signal levels expressed in dBμ assume a reference of 0 dBμ = 0.5 μV across infinite impedance.

POWER SUPPLY

A. Supply Voltage

Connect the DC voltmeter between the 13.8V terminal on the AVR Unit and chassis ground. Adjust VR_{701} for 13.8V on the meter.



VFO UNIT

A. Local Oscillator

1. Connect the frequency counter to TP_{101}, and check for 4.5056 MHz ± 100 Hz.
2. Connect the RF voltmeter to TP_{102} and adjust T_{104}, T_{105} and T_{106} for peak RF voltage (min. 500 mVrms).

B. VCV

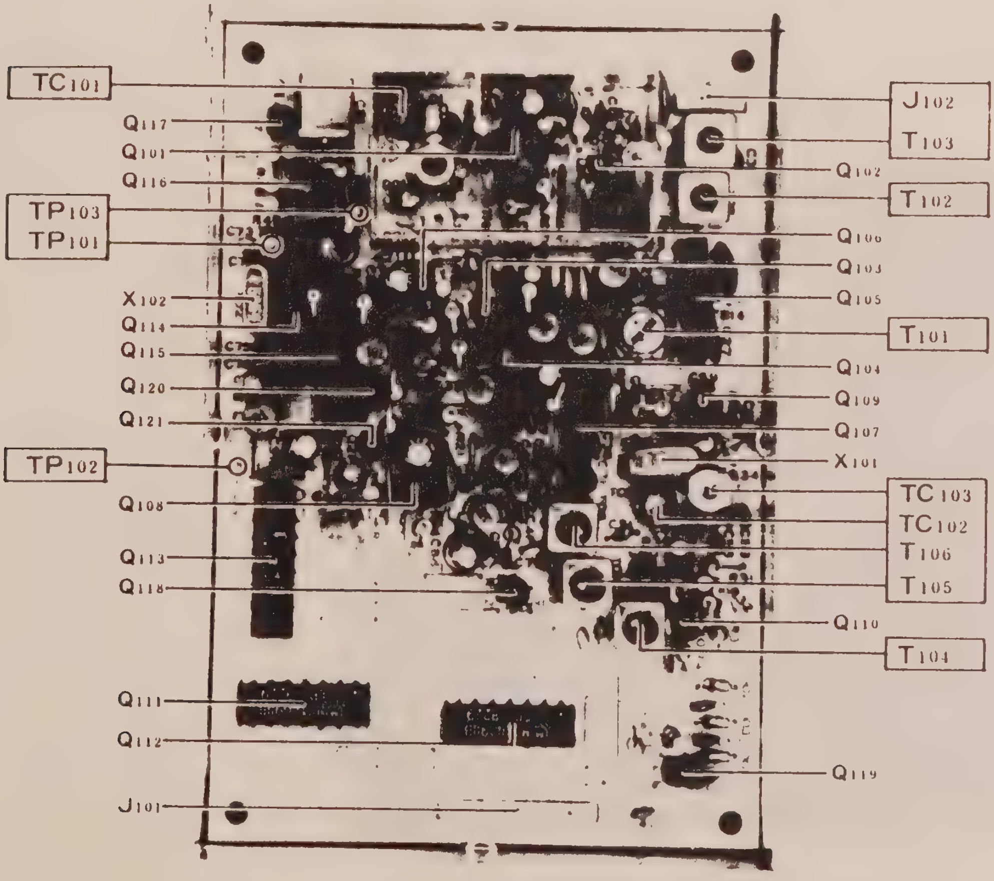
1. Tune the transceiver so that the display indicates xxx.x99.9 (x = any digit). Connect the DC voltmeter to TP_{103} and adjust TC_{101} for 6.5V on the meter (shield cover in place).
2. Retune the transceiver to indicate xxx.x00.0, and check for 3.0 to 4.0V on the meter.

C. VFO Output Level

Set the transceiver to indicate xxx.x50.0, and connect the RF voltmeter to pin 1 of J_{102}. Adjust T_{101} – T_{103} for peak RF voltage (min. 50 mVrms).

D. Channel Step Calibration

1. Set the transceiver to the FM mode, FM-CH function ON, and the STEP button in the OUT position. Tune for a display frequency of xxx.x50.0.
2. Connect the frequency counter through a 0.01 μF capacitor to pin 1 of J_{102}, and now select the LSB mode. Adjust TC_{103} for 7.835000 MHz on the counter.
3. Press the DOWN button to step the frequency 100 Hz lower on the display, and adjust TC_{102} for 7.834980 MHz on the counter.
4. Press the UP button to return to the original display frequency, and repeat the adjustment in step 2. Repeat step 3, and then steps 2 and 3 again until no further adjustment is required.



VFO UNIT

TX UNIT

A. ALC Meter

With the MIC GAIN control fully counterclockwise and in the USB mode, close the PTT line and adjust VR_{1006} to the threshold point where ALC indication just begins.

B. CW, FM Carrier Point

1. Connect the wattmeter with the dummy load to the 144 MHz ANT jack. Select the CW mode, and then close the PTT line and adjust T_{1002} and T_{1003} for maximum power on the wattmeter, adjusting the DRIVE control, if necessary, so that the ALC meter does not deflect.
2. Connect the frequency counter to pin 1 of J_{1001}. Close the PTT line and adjust TC_{1002} for 10.809200 MHz ± 50 Hz on the counter.
3. Now select the FM mode, and adjust T_{1001} for 10.810000 MHz ± 100 Hz on the counter.

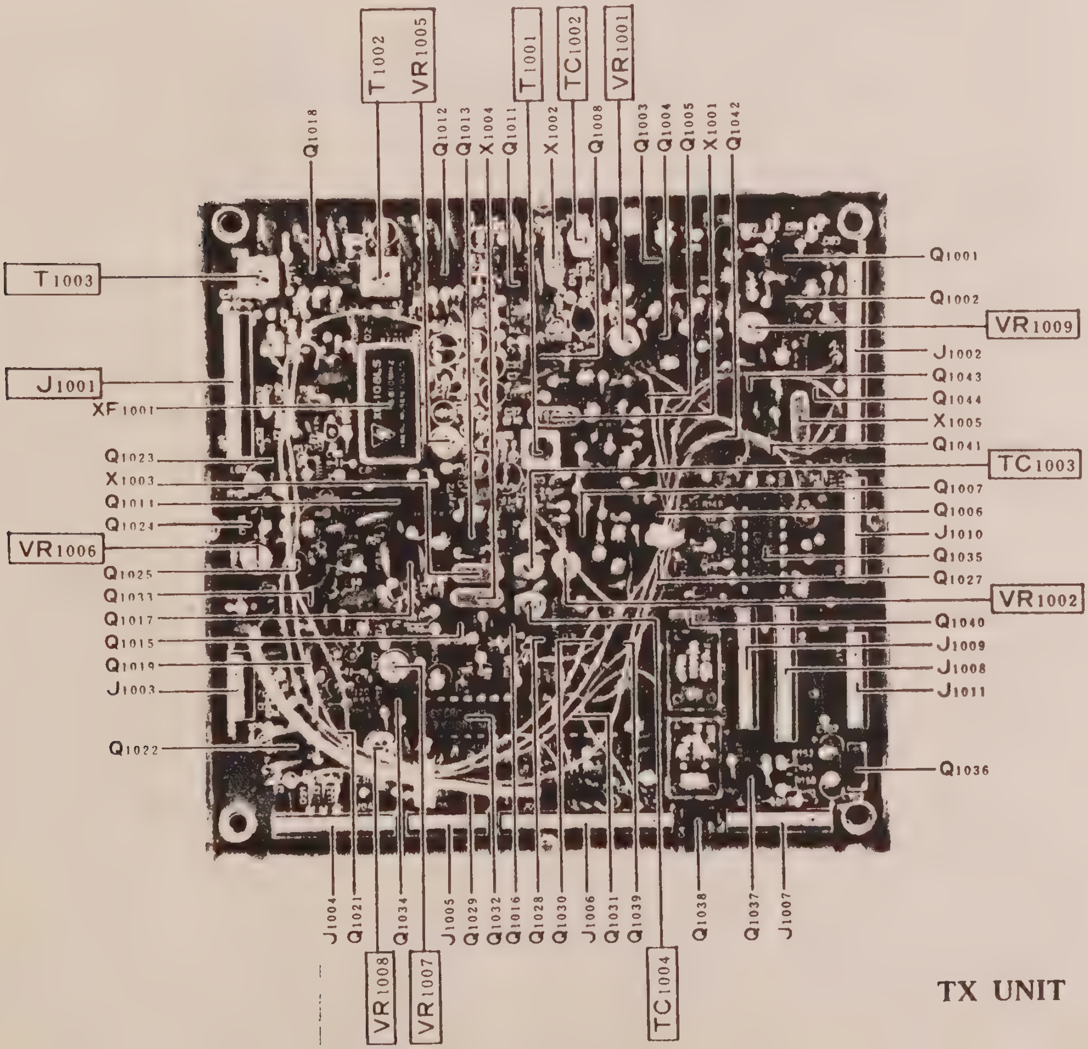
C. FM Modulator

1. Couple the deviation meter through a sampling coupler or attenuator to the ANT jack. Connect the AF generator to pin 8 of the MIC jack, and set for 15 mV output at 1 kHz. Select the FM mode, close the PTT line, and adjust VR_{1002} for ±4.5 kHz deviation.
2. Disconnect the AF generator, and set the MIC GAIN control fully counterclockwise. Press the CALL button and adjust VR_{1009} for ±3.0 kHz deviation.

D. SSB Carrier Point

(If the ALC meter deflects during this procedure, reduce the setting of the DRIVE control.)

1. Preset VR_{1001} to the center of its range. Connect the AF generator to pin 8 of the MIC jack, and set for 0.5 mV output at 2800 Hz. Set the transceiver to USB, close the PTT line, and note the output power on the wattmeter.



TX UNIT

2. Retune the AF generator to 300 Hz while maintaining the same generator output level, and adjust TC_{1004} for the same transceiver output level on the wattmeter.
3. Return to receive, select the LSB mode, and repeat the two previous steps, adjusting TC_{1003} until the power output is the same at both audio frequencies.

E. CW Sidetone Level

Connect the AF voltmeter across the speaker terminals, set VR_{1007} to the center of its range, and select the CW mode. Close the PTT line and adjust VR_{1008} for 150 mVrms on the voltmeter.

F. FM Modulation Indicator Check

Select the FM mode, and set the AF generator for 0.5 mV at 1 kHz to the MIC jack. Set the MIC GAIN control to the 12 o'clock position, close the PTT line, and check to see that the BUSY LED (indicating FM modulation) is lit.

G. SSB Carrier Balance

1. Set the MIC GAIN control and VR_{1001} fully counterclockwise, and set the mode to USB. Set the external monitor receiver to the transceiver frequency, close the PTT line, and adjust VR_{1005} for minimum signal strength in the external receiver.
2. Switch to LSB, key the transmitter, and observe the signal strength at the external receiver. Then switch back to USB and again key the transmitter and observe the signal strength. If the signal strength is different in the different modes, adjust VR_{1005} and repeat this step until the strength is about the same in both USB and LSB.
3. Switch to FM, close the PTT line, and set the DRIVE control so that the ALC meter deflects just to the right edge of the ALC zone (mid-scale). Set the AF generator for 15 mV output at 1 kHz. Switch to USB, close the PTT line, and adjust VR_{1001} so that the ALC meter again deflects to the right edge of the ALC zone.

H. Tone Burst Check

Set the mode for FM, and with the external receiver tuned to the same frequency as the transceiver, press the CALL button and listen for a 0.5-second tone.

RX UNIT

A. IF Bandpass Filters

Connect the signal generator to the ANT jack, and set for ±3.5 kHz FM deviation. Tune the generator and transceiver to 146.000000 MHz, and set the generator output level for slight deflection of the S-meter. (If operation is limited to between 144 and 146 MHz, use 145 MHz for alignment.) Adjust T_{2001} and T_{2002} for maximum S-meter deflection.

B. Second Local Oscillator

1. Connect the frequency counter to TP_{2002}. Set the transceiver to USB and adjust T_{2005} for 11.2650 MHz on the counter.
2. Connect the frequency counter to TP_{2001} and adjust T_{2012} for 11.2050 MHz on the counter.

C. IF Coils and S-Meter

1. With the signal generator and transceiver tuned as in part A, with no modulation and the transceiver set to USB, adjust T_{2003}, T_{2004}, T_{2006} and $T_{2008}-T_{2011}$ all for peak indication on the S-meter.
2. Remove the signal generator from the ANT jack, and listen to the receiver noise while switching from USB to LSB and back. Adjust T_{2005}, if necessary, until the noise is about the same pitch.
3. Connect the signal generator to the ANT jack, and set for an output level of 20 dBμ at 146.000 (or 145.000) MHz. With the transceiver tuned to the same frequency, preset VR_{2002} to midrange, and adjust VR_{2005} for S9 deflection on the S-meter.
4. Increase the generator output to 80 dBμ and adjust VR_{2004} for S9+60dB on the meter.
5. Repeat the adjustments of steps 3 and 4 several times.

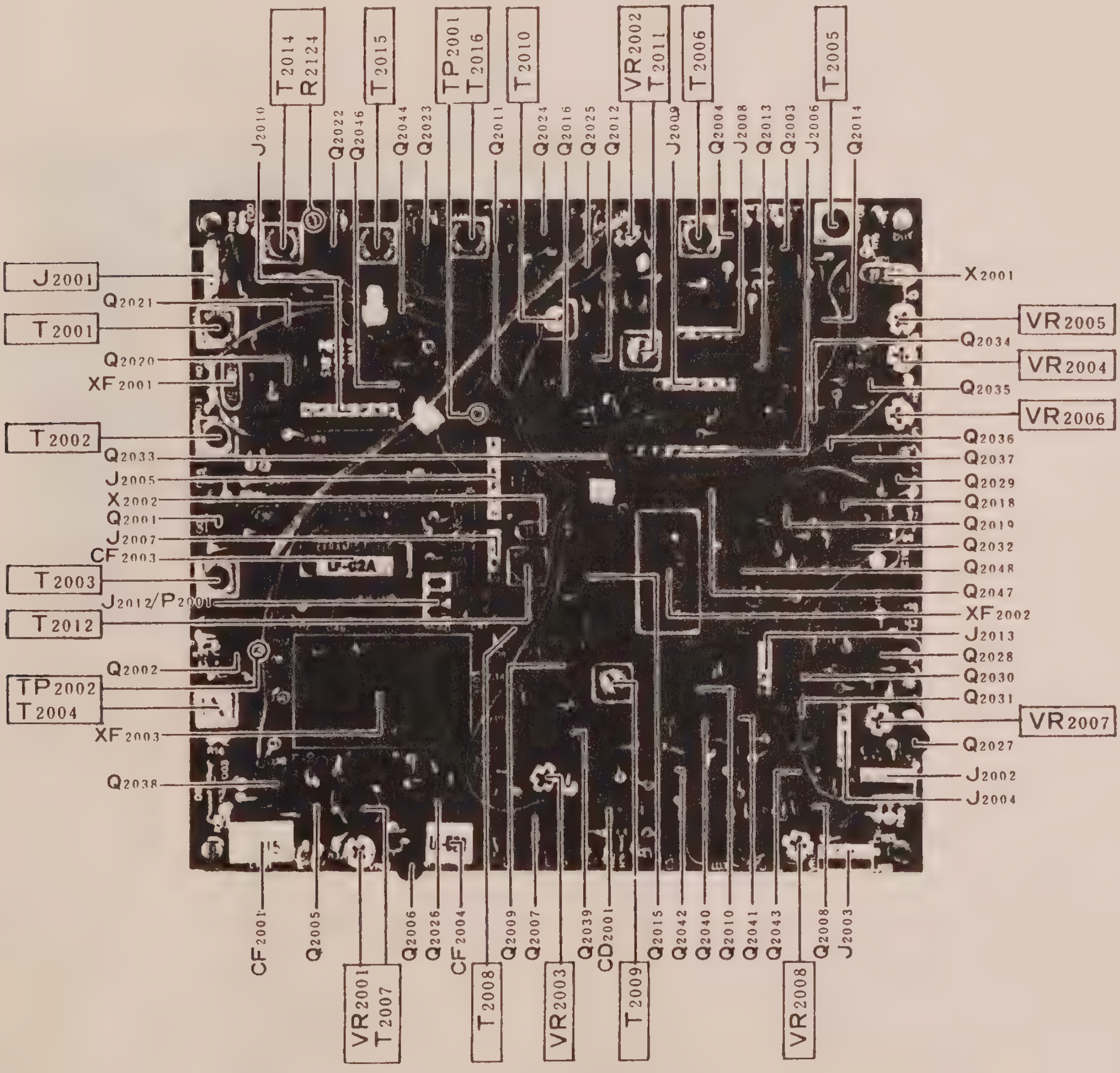
6. Set the transceiver to FM, and set the generator for 60 dBμ output with ±3.5 kHz FM deviation. Adjust VR$_{2003}$ for full-scale S-meter deflection.
7. Decrease the generator output to 20 dBμ and adjust VR$_{2001}$ for S9+30dB on the S-meter.
8. Adjust VR$_{2007}$ for center indication on the DISC meter (Meter I). Then remove the generator from the ANT jack, and note whether the DISC meter indication settles to the center. If not, adjust T$_{2007}$ so that it does.

D. Noise Blanker

Connect the signal generator to the ANT jack, and set the output level for 30 dBμ at 145.5 MHz. Connect the DC voltmeter to the lead of R$_{2124}$ on the RX Unit, and adjust T$_{2014}$ – T$_{2016}$ for minimum DC voltage on the meter.

E. Squelch Preset

1. Remove the generator from the ANT jack set VR$_{2008}$ fully clockwise, and set the SQL control to the threshold point where the noise is just silenced in the FM mode. The SQL control position should be between 8 and 9 o'clock.
2. Set the mode to USB, and the SQL control to the 9 o'clock position. Adjust VR$_{2006}$ to the threshold point while receiving only noise.



RX UNIT

SATELLITE UNIT (Option)

(Set the SATELLITE selector to RX)

A. Local Oscillator

Connect the frequency counter to TP_{4001}, and check for 4.5056 MHz ± 100 Hz.

2. Connect the RF voltmeter to TP_{4002} and adjust T_{4003}, T_{4006}, T_{4007} and T_{4008} for peak RF voltage (min. 700 mVrms).

B. VCV

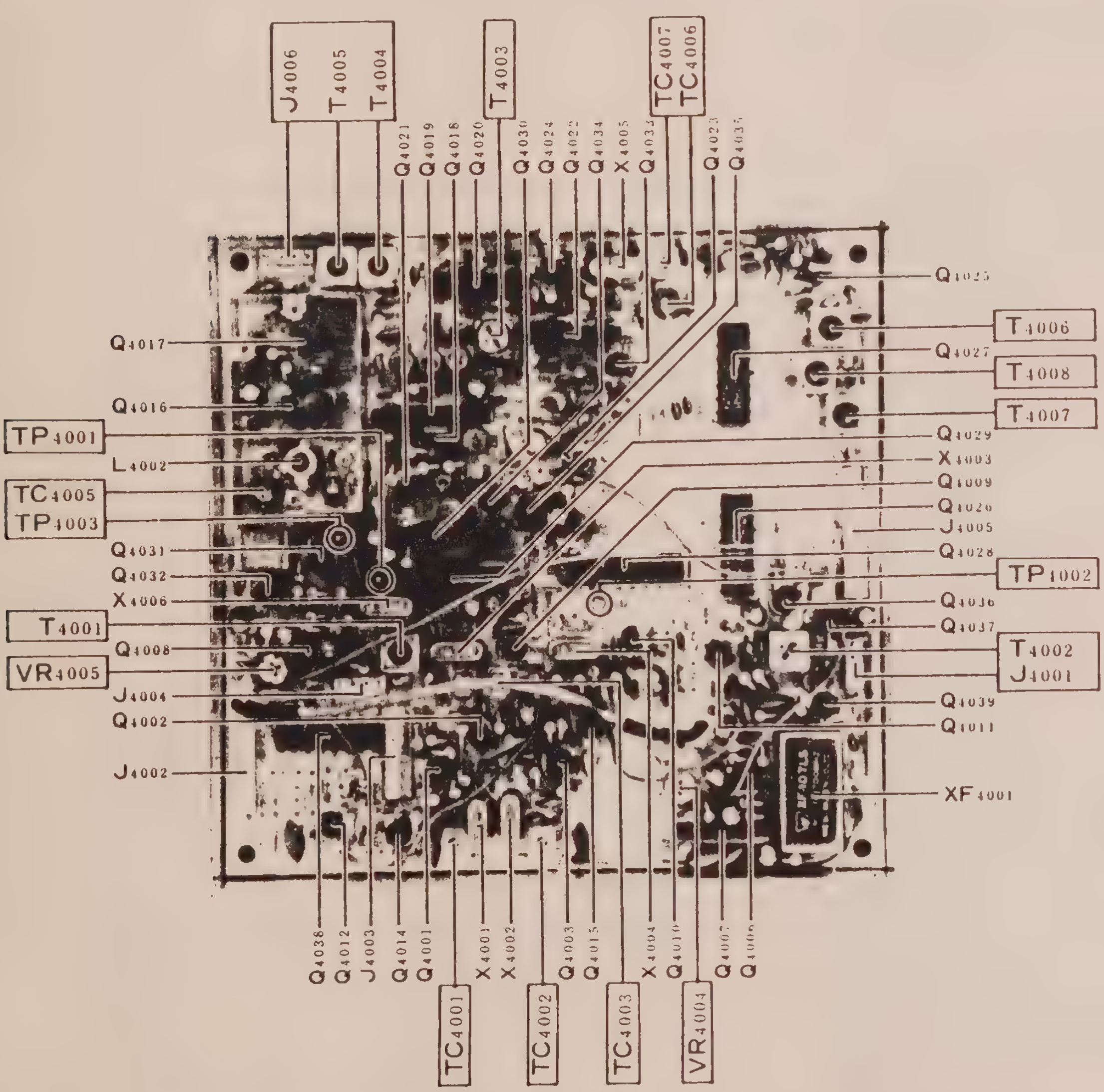
1. Tune the transceiver so that the display indicates xxx.x99.9. Connect the DC voltmeter to TP_{4003} and adjust TC_{4005} for 6.5V on the meter (shield cover in place).
2. Retune the transceiver to indicate xxx.x00.0, and check for 2.5–3.5V on the meter.

C. VFO Output Level

Set the transceiver to indicate xxx.x50.0, and connect the RF voltmeter to pin 1 of J_{4006}. Adjust T_{4003} – T_{4005} for peak RF voltage (min. 50 mVrms).

D. Channel Step Calibration

1. Set the transceiver to the FM mode, FM-CH function ON, and the STEP button in the OUT position. Tune for a display frequency of xxx.x50.0.
2. Connect the frequency counter through a 0.01 μF capacitor to pin 1 of J_{4006}, and now select the LSB mode. Adjust TC_{4006} for 7.945000 MHz on the counter.
3. Press the DOWN button to step the frequency 100 Hz lower on the display, and adjust TC_{4007} for 7.944980 MHz on the counter.



SAT UNIT

4. Press the UP button to return to the original display frequency, and repeat the adjustment in step 2. Repeat step 3, and then steps 2 and 3 again until no further adjustment is required.

E. CW, FM Carrier Point

(Set the SATELLITE selector to TX)

1. Connect the RF voltmeter to pin 2 of J_{4001}, and select the CW mode. Close the PTT line and adjust T_{4002} for maximum RF voltage on the meter.
2. Connect the frequency counter through a 0.01 μF capacitor to pin 2 of J_{4001}. Close the PTT line, and adjust TC_{4003} for 10.699200 MHz on the counter.
3. Switch to the FM mode, close the PTT line, and adjust T_{4001} for 10.700000 MHz on the counter.

F. FM Modulator

Couple the deviation meter through a sampling coupler or attenuator to the ANT jack. Connect the AF generator to pin 8 of the MIC jack, and set for 15 mV output at 1 kHz. Select the FM mode and set the MIC GAIN control to midrange. Close the PTT line and adjust VR_{4005} for ±4.5 kHz deviation on the meter.

G. SSB Carrier Point

(If the ALC meter deflects during this procedure, reduce the setting of the DRIVE control.)

1. Set the mode to USB. Connect the RF voltmeter to pin 2 of J_{4001}, and set the AF generator (at the MIC jack) for 0.5 mV output at 2800 Hz. Close the PTT line and note the RF voltage on the meter.
2. Retune the AF generator to 300 Hz while keeping the same output level, and adjust TC_{4002} to obtain the same RF level as noted in step 1.
3. Return to receive and switch to LSB. Repeat steps 1 and 2, adjusting TC_{4001}.

H. SSB Carrier Balance

1. With the dummy load and wattmeter connected to the ANT jack, set the MIC gain control fully counterclockwise and the mode to USB. Tune the external receiver to the transceiver frequency, close the PTT line, and adjust VR_{4004} for minimum signal strength at the external receiver.
2. Switch to LSB, key the transmitter, and observe the signal strength at the external receiver. Then switch back to USB and again key the transmitter and observe the signal strength. If the signal strength is different in the different sideband modes, adjust VR_{4004} and repeat this step until the strength is about the same in both USB and LSB.

50 MHz MODULE (Option)

A. PLL

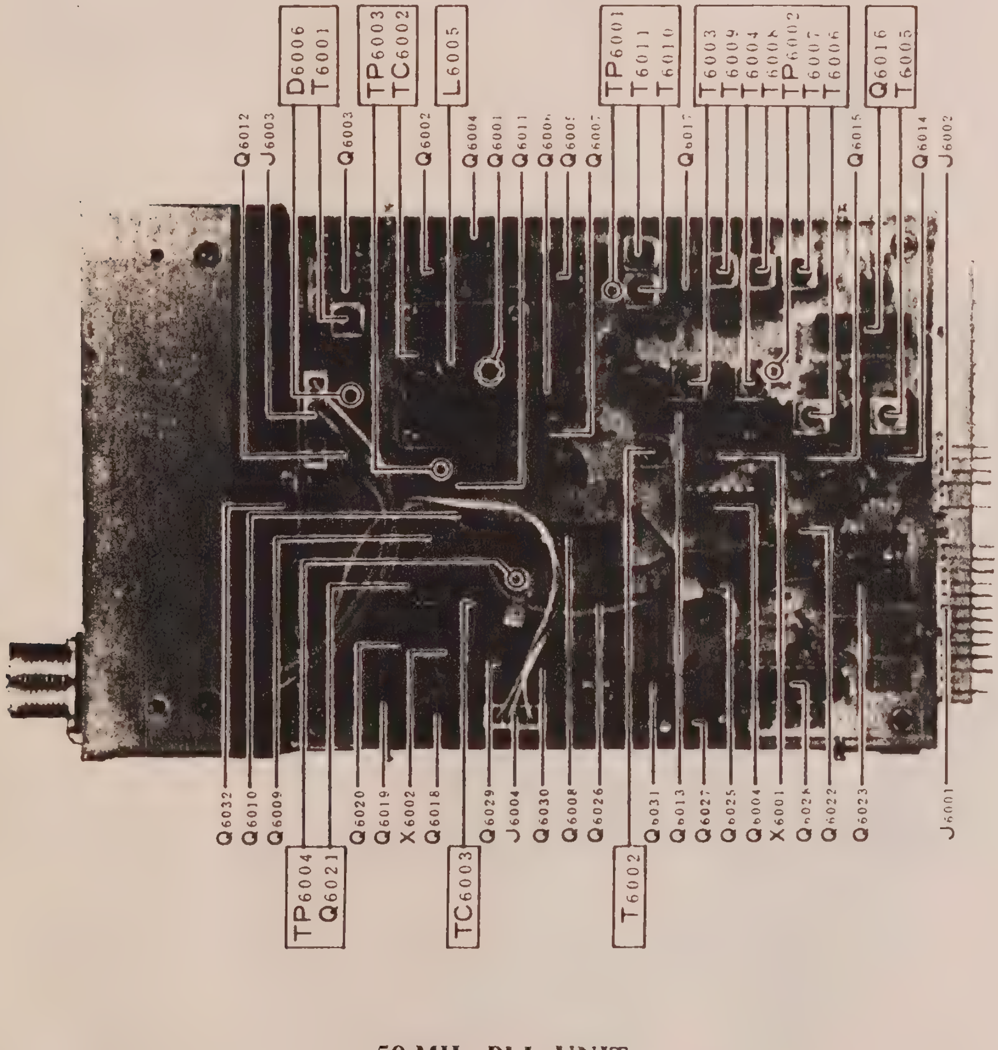
(If the optional SATELLITE Unit is installed, it must be switched OFF for all except step 3, which does not need to be performed if the SATELLITE Unit is not installed.)

1. Connect the frequency counter to pin 12 of Q_{6021}, and adjust TC_{6003} for 3.200000 MHz on the counter.
2. Tune the transceiver for a display of 5x.x50.0, and connect the RF voltmeter to pin 5 of Q_{6016}. Adjust T_{6006} for maximum RF voltage on the meter.
3. Set the SATELLITE selector to TX, and adjust T_{6005} for maximum RF voltage on the meter. Then set the SATELLITE selector OFF.
4. Tune the transceiver for a display of 53.990.0. Connect the RF voltmeter to TP_{6002}, and adjust T_{6003} and T_{6004} for peak RF voltage. Move the RF voltmeter to TP_{6001} and peak T_{6007} – T_{6011}. Now connect the RF voltmeter to TP_{6004} and peak each of the above transformers again, which should result in a final reading of approximately 700 mVrms on the meter.

5. Connect the DC voltmeter (10V range) to TP$_{6003}$ and adjust L$_{6005}$ for 6.5V on the meter. Now tune the transceiver for a display of 51.990.0 and adjust TC$_{6002}$, also for 6.5V on the meter. Repeat the adjustment of L$_{6005}$ at 53.990.0 MHz and TC$_{6002}$ at 51.990.0 MHz several times.
6. Now tune the transceiver for displays of 52.000.0 and 50.000.0 and check to see that the meter indicates 1.0–2.0V DC.
7. Connect the dummy load to the 50 MHz ANT jack. Connect the RF voltmeter to the cathode of D$_{6006}$ and tune the transceiver for a display of 52.050.0. Close the PTT line and adjust T$_{6001}$ for maximum RF voltage on the meter.
8. Connect the frequency counter to the cathode of D$_{6006}$ and tune the transceiver for a display of 52.000.0, FM mode. Adjust T$_{6002}$ for 41.190000 MHz on the counter.

B. **Receiver Section**

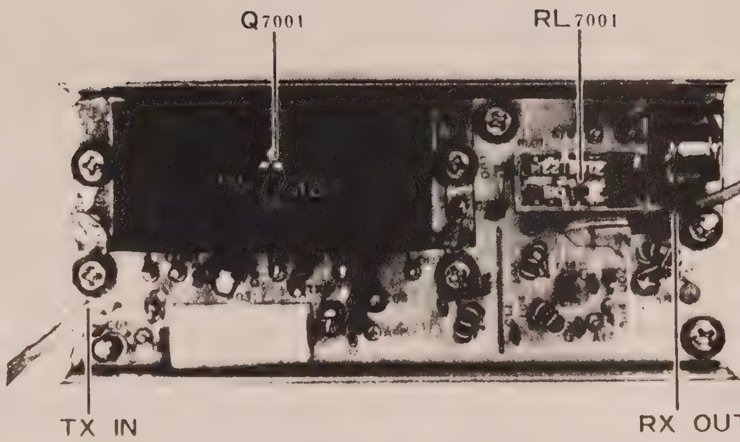
1. Connect the RF signal generator to the 50 MHz ANT jack, and set the output to 52.000000 MHz, with ±3.5 kHz FM deviation and 1 kHz modulation. Tune the transceiver to the same frequency, FM mode, and set the generator output level for slight S-meter deflection. Adjust T$_{5001}$–T$_{5009}$ for peak on the S-meter (reduce the generator level, as required, to keep the S-meter reading below S9).
2. Connect the AF voltmeter across the speaker terminals, and set the RF generator level to −10 dB at the ANT jack. Set the AF GAIN control for an indication of −10 dBV on the AF voltmeter, and then remove the generator from the ANT jack. The AF voltmeter should now indicate less than −22 dBV (12 dB S/N).



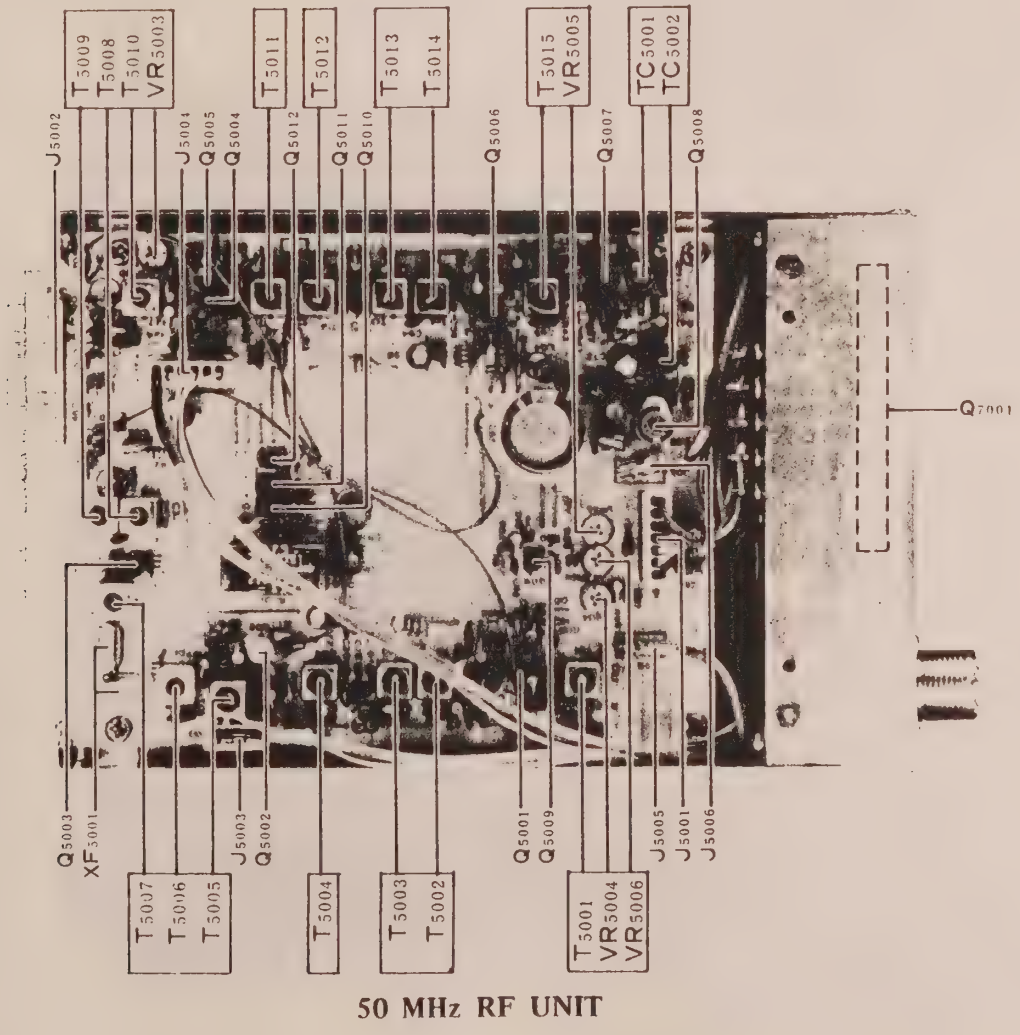
50 MHz PLL UNIT

C. Transmitter Section

1. Connect the wattmeter, dummy load and spectrum analyzer to the 50 MHz ANT jack. Preset VR_{5004} and VR_{5006} fully counterclockwise.
2. Tune the transceiver to 52.050.0 MHz, FM mode. Close the PTT line and adjust T_{5010} – T_{5015}, TC_{5001} and TC_{5002} for maximum power output on the wattmeter.
3. Tune the transceiver to 50.000.0 MHz and adjust VR_{5004} so that the ALC meter deflects to the right edge of the safe ALC zone (corresponding with S9 on the S-meter scale).
4. Tune the transceiver to 52.000.0 MHz and adjust VR_{5006} for 10 watts output on the wattmeter.
5. Adjust VR_{5005} so that the PO meter indicates "8" on the PO scale of Meter I.
6. Repeat steps 4 and 5 several times.
7. Adjust VR_{5003} for minimum level of the spurious signals 10.81 MHz either side of the transmitter carrier.



50 MHz PA UNIT



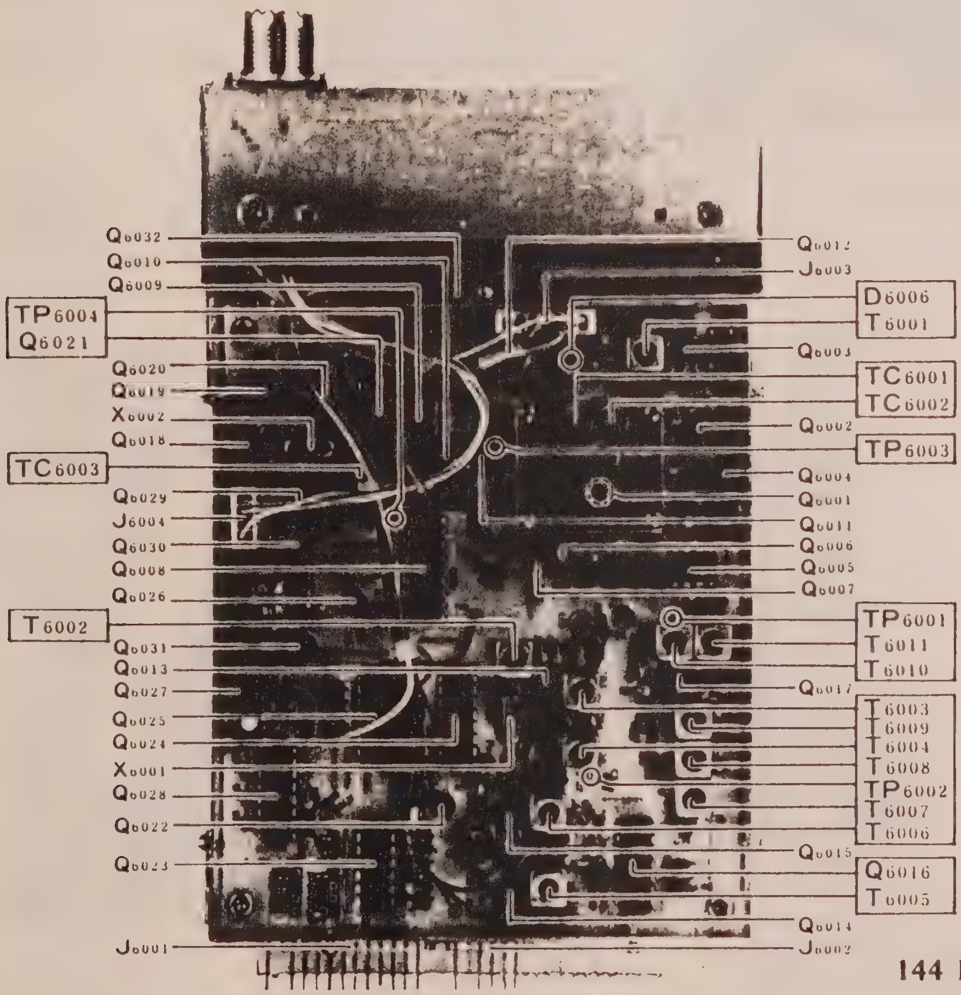
50 MHz RF UNIT

144 MHz MODULE

A. PLL

(If the optional SATELLITE Unit is installed, it must be switched OFF for all except step 3, which does not need to be performed if the SATELLITE Unit is not installed.)

1. Connect the frequency counter to pin 12 of Q_{6021}, and adjust TC_{6003} for 3.200000 MHz on the counter.
2. Tune the transceiver for a display of 14x.x50.0, and connect the RF voltmeter to pin 5 of Q_{6016}. Adjust T_{6006} for maximum RF voltage on the meter.
3. Set the SATELLITE selector to TX, and adjust T_{6005} for maximum RF voltage on the meter. Then set the SATELLITE selector OFF.
4. Tune the transceiver for a display of 147.990.0 (or 145.990.0 if 146 MHz is the upper limit of operation). Connect the RF voltmeter to TP_{6004} and adjust T_{6003}, T_{6004} and $T_{6007}-T_{6011}$ for maximum RF voltage on the meter (nom. 700 mVrms).
5. If transceiver operation is not limited to below 146 MHz, perform this step. Otherwise, skip to step 6. Connect the DC voltmeter (10V range) to TP_{6003}. Tune the transceiver for a display of 147.990.0 and adjust TC_{6001} for 6.2V on the meter. Retune the transceiver to 146.000.0 MHz and check for 1.5–3.0V on the meter.
6. Connect the DC voltmeter (10V range) to TP_{6003}, and tune the transceiver for a display of 145.990.0. Adjust TC_{6002} for 6.2V on the meter. Retune the transceiver to 144.000.0 MHz and check for 2.5–4.0V on the meter.
7. Connect the RF voltmeter to the cathode of D_{6006} and tune the transceiver for display of 145.500.0. Close the PTT line and adjust T_{6001} for maximum RF voltage.
8. Connect the frequency counter to TP_{6002}, and tune the transceiver to 145.000.0 MHz, FM mode. Adjust T_{6002} for 134.190000 MHz on the counter.



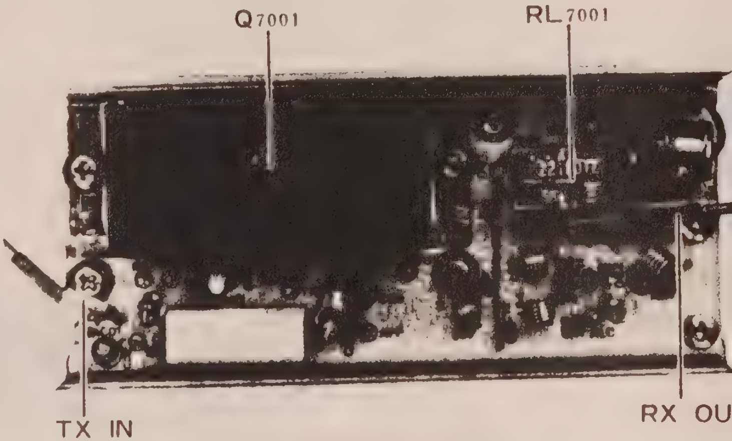
144 MHz PLL UNIT

B. Receiver Section

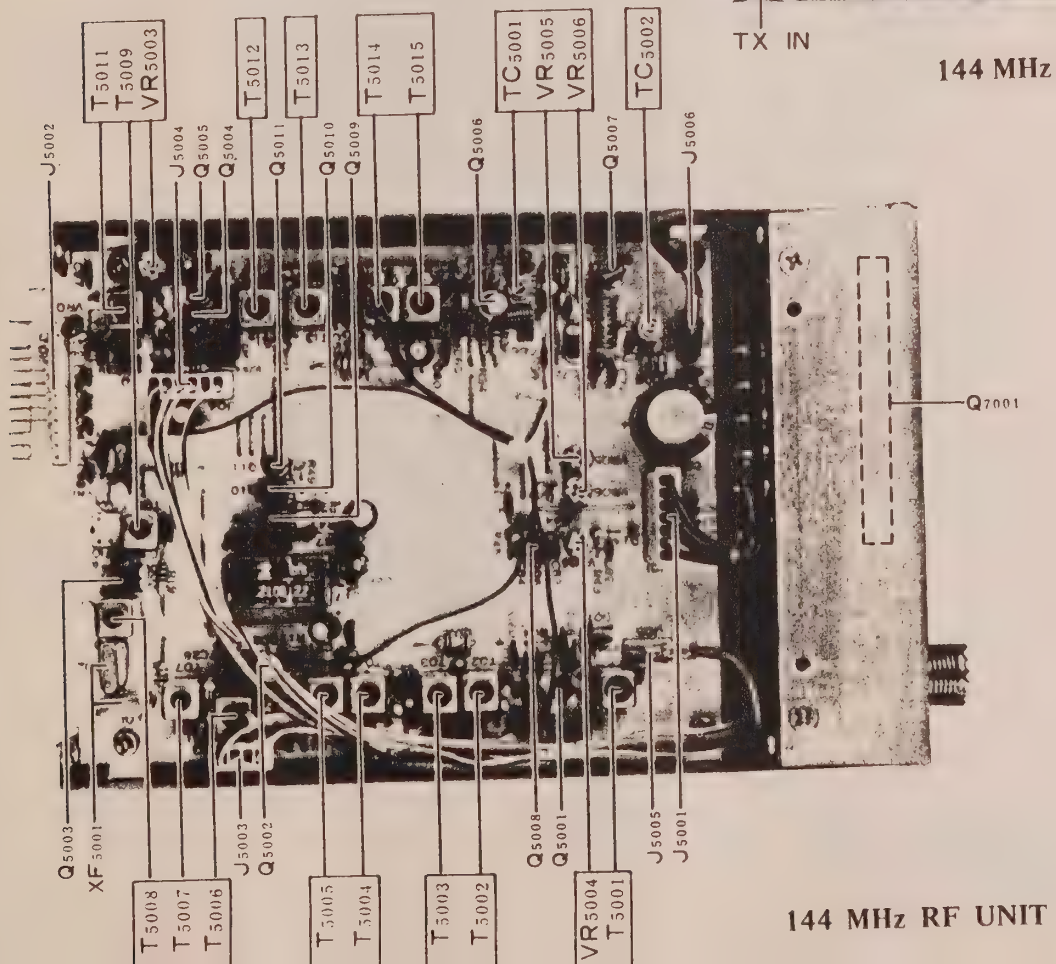
1. Connect the RF signal generator to the 144 MHz ANT jack, and set the output to 146.000000 MHz (or 145.000000 MHz if 146 is the band edge), with ±3.5 kHz FM deviation and 1 kHz modulation. Tune the transceiver to the same frequency, FM mode, and set the generator output level for slight S-meter deflection. Adjust T_{5001} – T_{5009} for peak on the S-meter (reduce the generator level, as required, to keep the S-meter reading below S9).
2. Connect the AF voltmeter across the speaker terminals, and set the RF generator level to −10 dB at the ANT jack. Set the AF GAIN control for an indication of −10 dBV on the AF voltmeter, and then remove the generator from the ANT jack. The AF voltmeter should now indicate less than −22 dBV (12 dB S/N).

C. Transmitter Section

1. Connect the wattmeter, dummy load and spectrum analyzer to the 144 MHz ANT jack. Preset VR_{5004} and VR_{5006} fully counterclock-
2. Tune the transceiver to 146.50 (or 145.50) MHz, FM mode. Close the PTT line and adjust T_{5011} – T_{5015}, TC_{5001} and TC_{5002} for maximum power output on the wattmeter.
3. Adjust VR_{5004} so that the ALC meter deflects just to the right edge of the safe ALC zone (corresponding with S9 on the S-meter scale).
4. Adjust VR_{5006} for 10W output on the wattmeter.
5. Adjust VR_{5005} so that the PO meter indicates "8" on the PO scale of Meter I.
6. Repeat steps 4 and 5 several times.
7. Adjust VR_{5003} for minimum level of the spurious signals 10.81 MHz either side of the transmitter carrier.



144 MHz PA UNIT



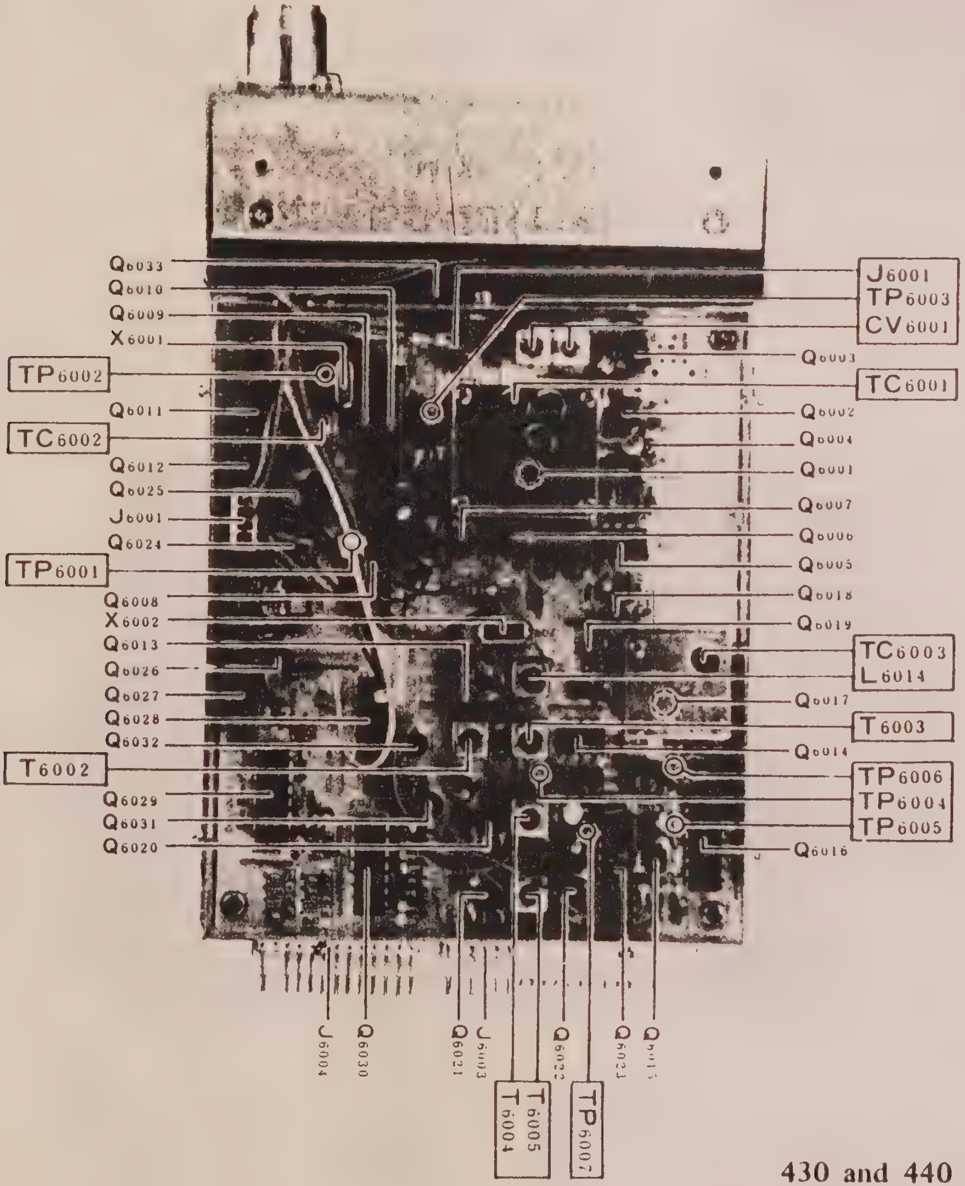
144 MHz RF UNIT

430 MHz AND 440 MHz MODULES

A. PLL

(If the optional SATELLITE Unit is installed, it must be switched OFF for all except step 3, which does not need to be performed if the SATELLITE Unit is not installed.)

1. Connect the frequency counter to TP$_{6002}$, and adjust TC$_{6002}$ for 8.533330 MHz on the counter.
2. Tune the transceiver for a display of 4xx.x50.0, and connect the RF voltmeter to TP$_{6007}$. Adjust T$_{6004}$ for maximum RF voltage on the meter.
3. Set the SATELLITE selector to TX, and adjust T$_{6005}$ for maximum RF voltage on the meter. Then set the SATELLITE selector back to OFF.
4. Connect the oscilloscope to TP$_{6005}$, and adjust T$_{6002}$ and T$_{6003}$ for maximum amplitude on the scope waveform (nom. 1 Vrms).
5. Connect the DC voltmeter to TP$_{6006}$, and tune the transceiver for a display of 4xx.x99.9. Adjust TC$_{6003}$ for 4.0V DC on the meter. Now retune for a display of 4xx.x00.0 and check for about 3.5V DC on the meter.
6. Connect the DC voltmeter to TP$_{6003}$ and tune the transceiver for a display of 4x9.990.0. Adjust TC$_{6001}$ for 6.5V on the meter. Retune the transceiver for display of 4x0.000.0 and check for 2.0–3.0V on the meter.
7. Connect the RF voltmeter and a 50-ohm resistive load to J$_{6001}$, and tune the transceiver to 435 (or 445) MHz. Adjust CV$_{6001}$ for maximum RF voltage on the meter.

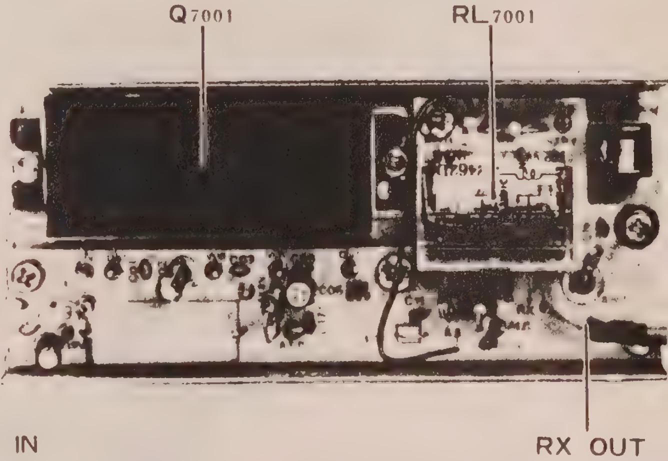


430 and 440 MHz PLL UNIT

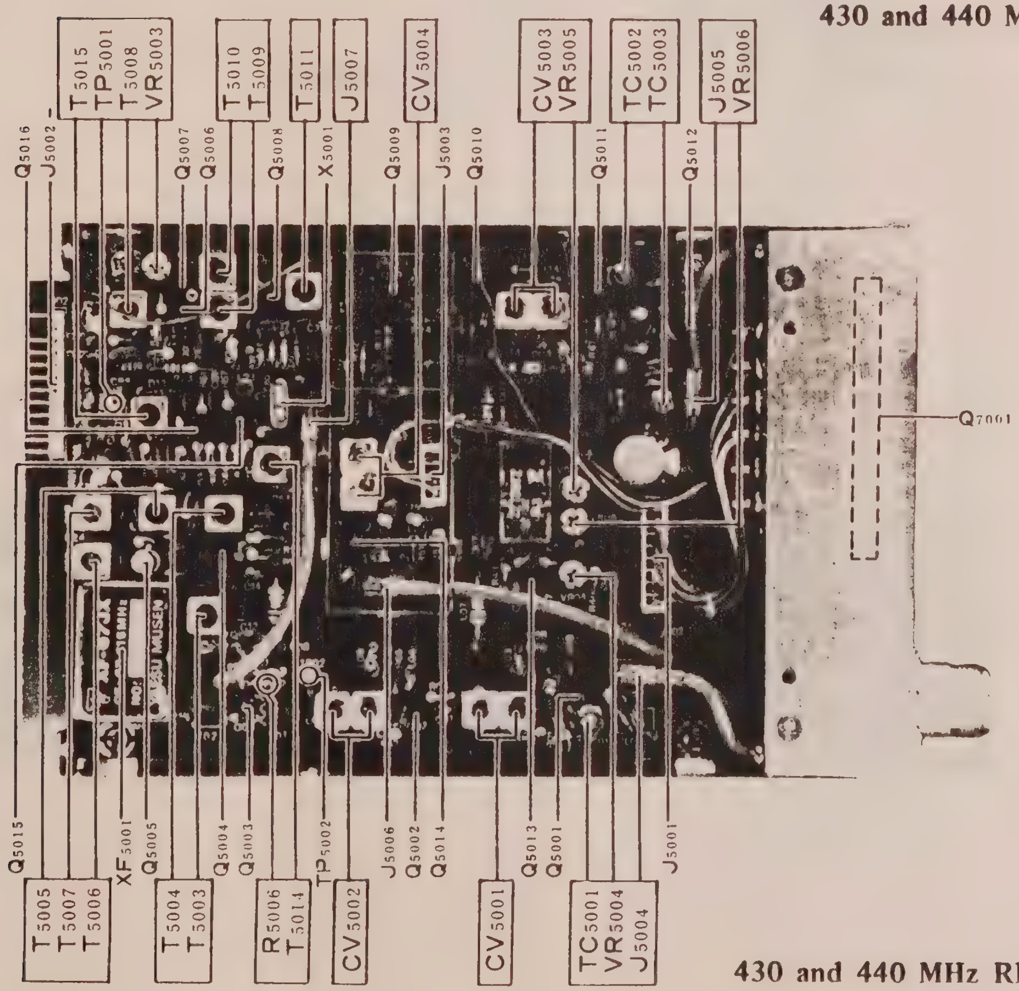
8. Tuning the transceiver back and forth across the band, adjust CV_{6001} so that ripple in the passband is less than 2 dB.
9. Connect the frequency counter to J_{6001} and tune the transceiver for display of 435.000.0 (or 445.000.0), FM mode. Adjust L_{6014} for 367.385000 MHz (or 377.385000 MHz) on the counter.

B. Receiver Section

1. Connect the RF voltmeter to TP_{5001}, close the PTT line, and adjust T_{5015} for maximum RF voltage (nom. 220 mVrms).
2. Connect the frequency counter to the anode of D_{5012}, and adjust T_{5014} for 56.805000 MHz on the counter.
3. Connect the RF voltmeter to the junction of R_{5033} and C_{5039}. Tune the transceiver to the center of the band and adjust CV_{5004} for maximum RF voltage on the meter. Check for less than 2 dB ripple across the band.
4. With the signal generator connected to the ANT jack, modulate the output with ±3.5 kHz FM deviation and 1 kHz modulation, and tune the generator and transceiver to the center of the band. With the transceiver set for FM, adjust the output level of the generator for slight S-meter deflection. Adjust TC_{5001}, CV_{5001}, CV_{5002} and T_{5003}–T_{5007} for peak S-meter deflection (adjust the generator level, if necessary, to keep the S-meter below S9).
5. Connect the SINADer across the speaker terminals and adjust T_{5003} and TC_{5001} for **maximum SINAD ratio.**



430 and 440 MHz PA UNIT

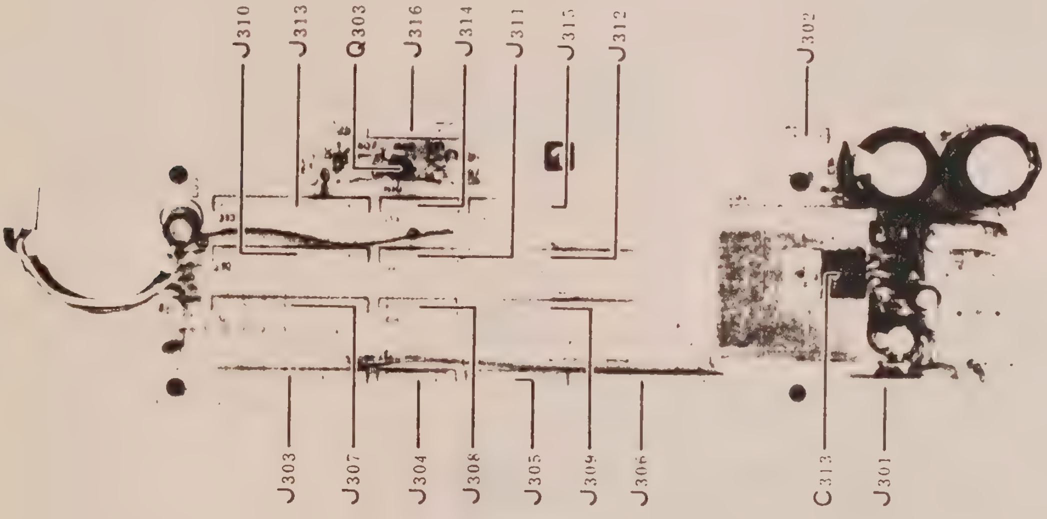


430 and 440 MHz RF UNIT

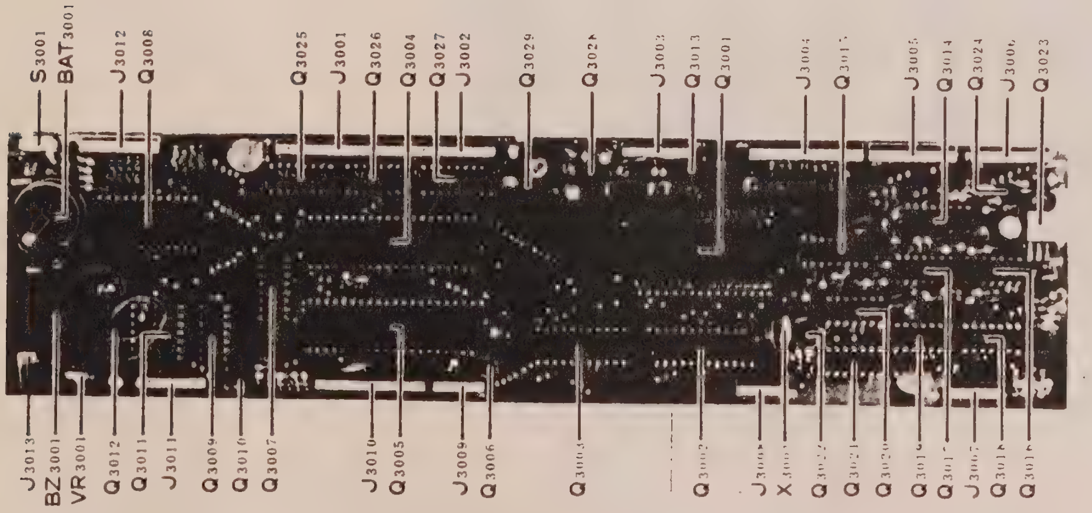
6. Connect the AF voltmeter across the speaker terminals and adjust the RF generator level for −15 dB to the ANT jack. Preset the AF GAIN control for −10 dBV on the AF voltmeter. Now disconnect the RF generator from the ANT jack, and check for less than −17 dBV on the AF voltmeter (7 dB S/N).

C. Transmitter Section

1. Connect the dummy load and wattmeter through a branch attenuator to the ANT jack, and connect the spectrum analyzer to the branch. Preset VR_{5004} and VR_{5006} fully counterclockwise.
2. With the transceiver tuned to the center of the band, FM mode, adjust $T_{5008}-T_{5011}$, TC_{5002}, TC_{5003} and CV_{5003} for maximum output power on the wattmeter.
3. Adjust VR_{5004} so that the ALC meter deflects just to the right edge of the safe ALC zone (corresponding with the S9 mark).
4. Adjust VR_{5006} for 10 watts output on the wattmeter.
5. Adjust VR_{5005} so that the PO meter deflects to the "8" mark on the PO scale.
6. Repeat steps 4 and 5 several times.
7. Adjust VR_{5003} for minimum level of the spurious signals 10.81 MHz on either side of the carrier frequency.



AF UNIT



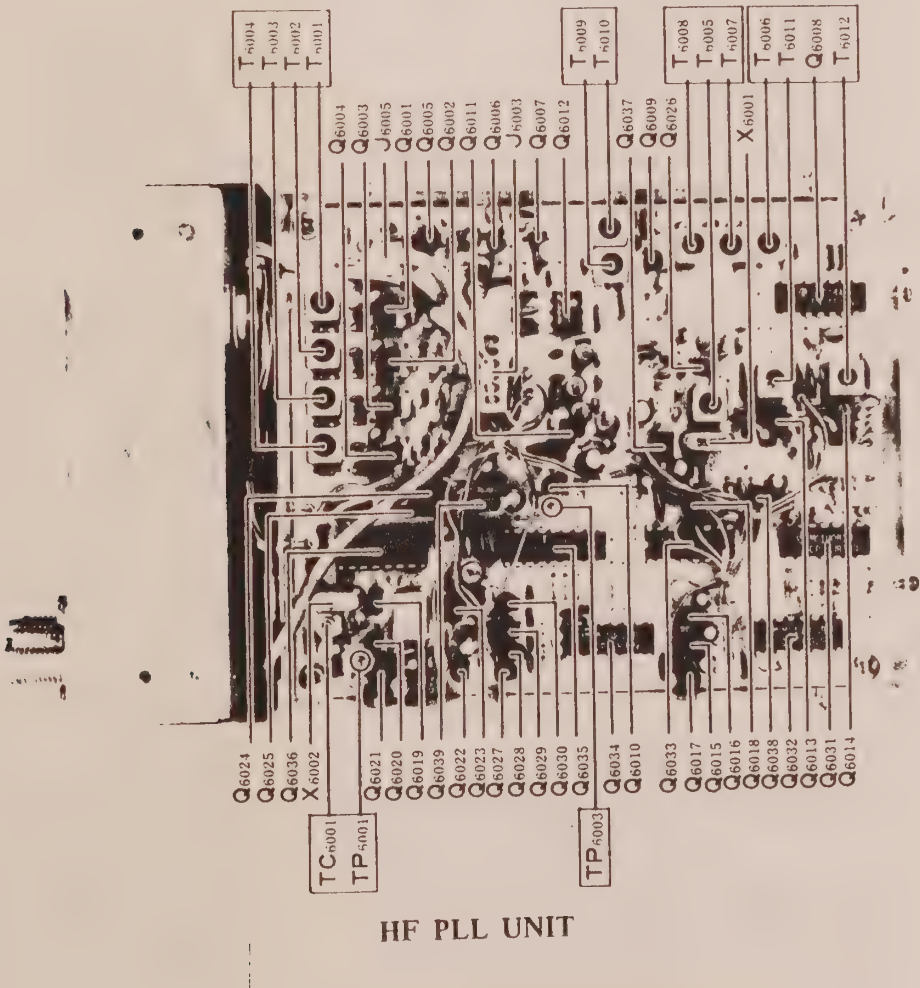
CONTROL UNIT

HF MODULE (Option)

A. PLL

(If the optional SATELLITE Unit is installed, it must be switched OFF for all except step 3, which does not need to be performed if the SATELLITE Unit is not installed.)

1. Connect the frequency counter to pin 11 of Q_{6008}, and adjust T_{6005} for 58.4685 MHz (±50 Hz) on the counter.
2. Tune the transceiver for a display of 2x.x50.0, and connect the RF voltmeter to pin 5 of Q_{6008}. Adjust T_{6011} for maximum RF voltage on the meter (approx. 100 mVrms).
3. Set the SATELLITE selector to TX and adjust T_{6012} for maximum RF voltage on the meter (approx. 100 mVrms).
4. Tune the transceiver for a display of 21.4999, and connect the oscilloscope to TP_{6003}. Adjust T_{6006} and T_{6011} for maximum deflection on the scope (approx. 2 Vrms).
5. Connect the frequency counter to TP_{6003} and adjust TC_{6001} for 1.4 MHz (±10 Hz) on the counter.
6. Connect the DC voltmeter (10V range) to TP_{6001} and tune the transceiver for a display of 21.4990. Adjust T_{6004} for 6.5V on the meter. Now tune the transceiver for a display of 21.0000 and check that the meter now indicates between 3 and 4V.
7. Tune the transceiver for a display of 24.9990, and adjust T_{6003} for 6.5V on the DC voltmeter. Now tune the transceiver for a display of 24.5000 and again check for 3 to 4V on the meter.
8. Tune the transceiver for a display of 29.9990, and adjust T_{6002} for 6.5V on the DC voltmeter. Now tune the transceiver for a display of 28.0000 and again check for 3 to 4V on the meter.

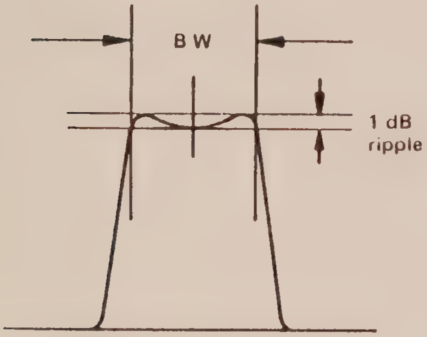


HF PLL UNIT

B. Receiver Section

1. Connect the sweep generator output to the anode of D_{5017}, and connect the detector and oscilloscope to J_{5006}. With the transceiver set to USB, adjust the transformers indicated in the table below for less than 1 dB of ripple in the three bands indicated, as shown in the diagram.

Band	Frequency	Transformer
21MHz	21.0–21.5MHz	T_{5005}, T_{5009}
24.5MHz	24.5–25.0MHz	T_{5004}, T_{5008}
28MHz	28.0–30.0MHz	T_{5002}, T_{5006}

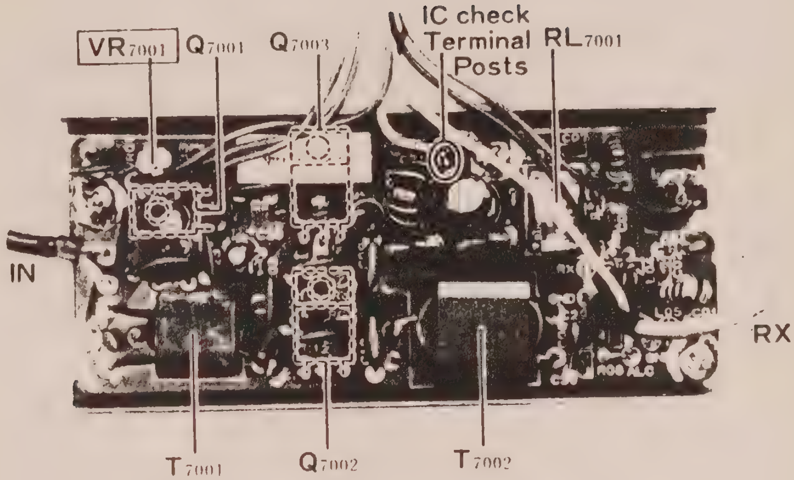


2. Connect the RF voltmeter to the cathode of D_{5002} and adjust T_{5001} for maximum RF voltage on the meter (approx. 180 mVrms).
3. Connect the frequency counter to the same point and adjust L_{5001} for 57.065 MHz (±50 Hz) on the counter.
4. Connect the RF signal generator to the HF ANT jack, and tune it and the transceiver to 29.00 MHz. Modulate the signal generator output with 1 kHz audio at ±3.5 kHz deviation, and set the transceiver to the FM mode. Adjust the generator output level for midscale deflection of the S-meter, and then adjust T_{5012} through T_{5017} for maximum deflection on the S-meter (reduce the generator level if necessary to retain reasonable S-meter deflection).
5. Tune the transceiver to 29.999 MHz and set the signal generator level for an S-meter indication of S9. Now tune the transceiver and generator to 28.000 MHz and note the S-meter indication. If it varies by more than 3 dB (about half an S-unit), adjust T_{5006} and then recheck both ends of the band, readjusting T_{5006} again if necessary.
6. With the same signal generator setup as in the previous two steps, tune the transceiver and generator to 29 MHz and set the signal generator output level to 20 dB. Adjust VR_{5001} for an S-meter indication of S9+30dB.
7. Connect the AF voltmeter across the speaker terminals, and set the RF generator level to −10 dBV at the ANT jack. Set the AF GAIN control for an indication of −10 dBV on the AF voltmeter, and then remove the generator from the ANT jack. The AF voltmeter should now indicate less than −22 dBV (12 dB S/N).

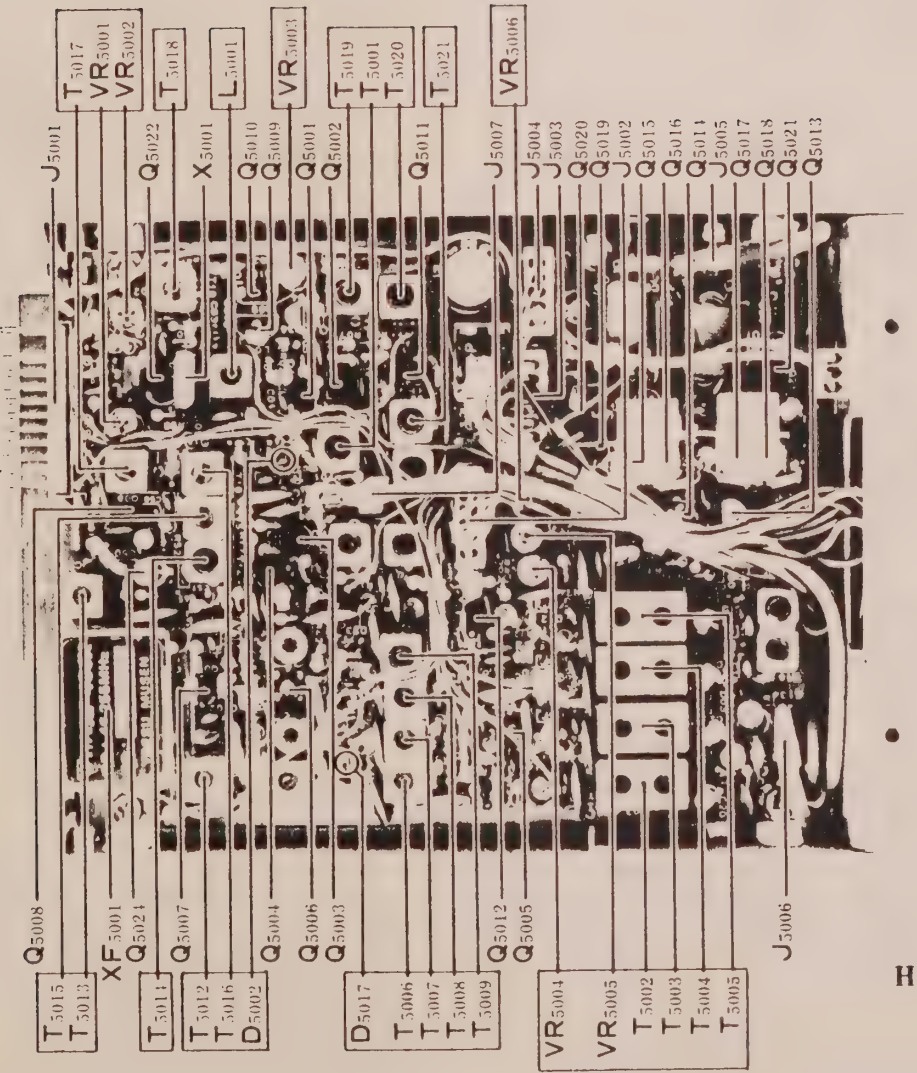
C. Transmitter Section

1. On the PA Unit, temporarily remove the jumper connecting the IC check terminal posts and connect the DC milliammeter between the posts. Set the milliammeter to the 300 mA range. Temporarily disconnect the center conductor of the TX IN coaxial cable. Key the transmitter and adjust VR_{7001} for an indication of 100 mA on the milliammeter. Remove the test equipment and reconnect the coaxial cable and jumper.
2. Connect the wattmeter, dummy load and spectrum analyzer to the HF ANT jack. Preset VR_{5005} and VR_{5006} fully counterclockwise, and the DRIVE control fully clockwise.
3. Tune the transceiver to 29.00 MHz, FM mode. Close the PTT line and adjust T_{5018} – T_{5021} for maximum deflection on the wattmeter (nom. 16W).
4. Adjust the DRIVE control on the front panel for 5W output, and then check the power output at 28.000 and 29.999 MHz. If it differs by more than 2W at these frequencies, adjust T_{5006} and recheck.
5. Repeat step 4 beginning at 21.25 MHz, and checking 21.000 and 21.499 MHz, adjusting T_{5009} if necessary.
6. Tune the transceiver to 29.000 MHz and set the DRIVE control to the 12 o'clock position. Close the PTT line and adjust VR_{5006} so that the ALC meter deflects to the right edge of the safe ALC zone (corresponding with S9 on the S-meter scale).
7. Set the DRIVE control fully clockwise and adjust VR_{5005} for 10W output on the wattmeter.

8. Adjust VR$_{5004}$ so that the PO meter on the front panel indicates "8" on the PO scale of Meter I, then repeat step 6 and again step 7 several times.
9. Adjust VR$_{5003}$ while transmitting for minimum spurious ±10.81 MHz from the carrier frequency.



HF PA UNIT



HF RF UNIT

COMPONENT APPLICATIONS

MAIN CHASSIS

PART NO.	DEVICE	TYPE	FUNCTION
Q1	μPC7808H	IC	Regulator (+8V Line)
D1	PR4632K	LED	FM-CH Indicator
D2	"	"	REV Indicator
D3	S11B	Si Diode	Reverse Voltage Protector

VFO UNIT

PART NO.	DEVICE	TYPE	FUNCTION
Q101	2SK192A-GR	JFET	PLL VCO (for NOR VFO)
Q102	2SK241Y	"	PLL Buffer Amplifier
Q103	2SC535B	Transistor	PLL Output Buffer
Q104	HD10551P	IC	1/44 Divider
Q105	μPC1037H	"	NOR VFO Premixer
Q106	2SK241Y	JFET	PLL Buffer Amplifier
Q107	μPC1037H	IC	PLL Mixer
Q108	2SC535B	Transistor	PLL IF Amplifier
Q109	2SC460B	"	PLL Local Oscillator (NOR VFO)
Q110	2SC535B	"	PLL Local Oscillator Multiplier (x9)
Q111	MC14094B	IC	Latch (NOR VFO PLL Divider Data)
Q112	"	"	" (")
Q113	TC9122P	"	PLL Programmable Divider
Q114	TC5082P	"	PLL Reference Oscillator, 1/1024 Divider
Q115	TC5081AP	"	PLL Phase Detector
Q116	2SK30AY	JFET	PLL Loop Filter Buffer
Q117	2SC945AP	Transistor	PLL Loop Filter
Q118	"	"	Switch (NOR VFO PLL Data)
Q119	"	"	Inverter (")
Q120	2SA733Q	"	PLL Unlock Signal Amplifier
Q121	2SC945AP	"	PLL Unlock Switch
D101	1T25	Varactor Diode	PLL VCO (for NOR VFO)
D102	1SS53	Si Diode	PLL Oscillator Frequency Control Switch
D103	"	"	"
D104	"	"	"
X101	6.38MHz	Crystal (HC-18/U)	PLL Local Oscillator (NOR VFO)
X102	4.5056MHz	" (")	PLL Reference Oscillator
TH101	33D28	Thermistor	Temperature Compensator (for Q101)

DISPLAY UNIT

PART NO.	DEVICE	TYPE	FUNCTION
V201	FIP-12A5A	FCD	Frequency Display
D201	PY4632K	LED	MODE Indicator (NOR LSB)
D202	"	"	" (NOR USB)
D203	"	"	" (NOR CW)
D204	"	"	" (NOR FM)
D205	BG4632K	"	" (SAT LSB)
D206	"	"	" (SAT USB)
D207	"	"	" (SAT CW)
D208	"	"	" (SAT FM)
D209	TLR205	"	ON AIR Indicator
D210	TLG205	"	BUSY (MOD) Indicator

AF UNIT

PART NO.	DEVICE	TYPE	FUNCTION
Q301	Not Used		
Q302	μPC2002H	IC	RX Audio Amplifier
Q303	2SC945AP	Transistor	TX Driver
D301	1SV80	PIN Diode	TX Power Controller

SCAN/SQL SWITCH UNIT

PART NO.	DEVICE	TYPE	FUNCTION
Q501	2SA733AP	Transistor	TONE SQL Switch (FM)
Q502	2SC945AP	"	RX TONE Amplifier
D501	1SS53	Si Diode	TONE SQL Switch (FM)

TX UNIT

PART NO.	DEVICE	TYPE	FUNCTION
Q1001	2SC1815GR	Transistor	TX MIC Amplifier
Q1002	"	"	" (FM)
Q1003	μPC1158H2	IC	" (SSB)
Q1004	2SC945AP	Transistor	TX Audio ALC Amplifier (SSB Audio Speech Processor)
Q1005	"	"	TX AF Amplifier (for FM)
Q1006	"	"	TX Active LPF (")
Q1007	"	"	TX AF Amplifier (")
Q1008	2SC460B	"	TX FM Carrier Mod. VCXO
Q1009	Not Used		
Q1010	"		
Q1011	2SC460B	Transistor	TX CW Carrier Oscillator
Q1012	3SK73Y	MOS FET	TX 1st IF Buffer Amplifier (FM, CW)
Q1013	2SC945AP	Transistor	TX AF Buffer Amplifier (SSB)
Q1014	μPC1037H	IC	TX Balanced Modulator (")
Q1015	2SA733AQ	Transistor	Carrier Oscillator Sideband Selector (USB)
Q1016	"	"	" (LSB)
Q1017	2SC460B	"	Carrier Oscillator
Q1018	3SK73Y	MOS FET	TX 1st IF Amplifier
Q1019	2SA733AQ	Transistor	FM TX 8V Switch
Q1020	Not Used		

Q1021	2SA733AQ	Transistor	CW TX 8V Switch
Q1022	〃	〃	SSB TX 8V Switch
Q1023	2SC1815BL	〃	TX ALC Amplifier
Q1024	2SK192A-GR	JFET	TX ALC Meter Amplifier
Q1025	2SA733AQ	Transistor	〃
Q1026	Not Used		
Q1027	2SC945AP	Transistor	TX MOD Indic. Signal Amplifier
Q1028	〃	〃	MOD LED Driver
Q1029	〃	〃	TX Sidetone Switch
Q1030	〃	〃	TX MOD Indic. Switch
Q1031	MC14011B	IC	TX CW Sequencer
Q1032	MC14069UB	〃	〃
Q1033	2SC945AP	Transistor	TX CW KEY Switch
Q1034	〃	〃	TX CW Delayer
Q1035	MC14081B	IC	TX VFO Select Gates
Q1036	μPC78L05	〃	Regulator (+5V Line)
Q1037	2SC945AP	Transistor	PTT Switch
Q1038	MPS-A13	〃	Relay Driver (for RL1001)
Q1039	2SC945AP	〃	〃 (for RL1002)
Q1040	2SA496Y	〃	SAT TX Switch
D1001	1S188FM	Ge Diode	TX Audio ALC Detector (SSB Audio Speech Processor)
D1002	〃	〃	〃 (〃)
D1003	1S1555	Si Diode	TX FM IDC
D1004	〃	〃	〃
D1005	FC53M-5	Varactor Diode	TX FM Modulator
D1006	MV103	Varistor Diode	Temperature Compensator [for TX FM Modulator (D1005)]
D1007	1SS53	Si Diode	MODE Switch (FM)
D1008	WZ050	Zener Diode	Regulator (for TX FM Modulator VCXO)
D1009	1SS53	Si Diode	MODE Switch (for FM)
D1010	Not Used		
D1011	〃		
D1012	〃		
D1013	〃		
D1014	〃		
D1015	〃		
D1016	1SS53	Si Diode	MODE Switch (CW)
D1017	〃	〃	KEY Switch
D1018	1S1588	〃	TX 1st IF Limiter (FM, CW)
D1019	〃	〃	〃 (〃)
D1020	1SS53	〃	MODE Switch (〃)
D1021	〃	〃	〃 (SSB)
D1022	〃	〃	Carrier Oscillator LSB Selector
D1023	〃	〃	〃 USB Selector
D1024	〃	〃	SSB BFO Switch (RX)
D1025	〃	〃	〃 (TX)
D1026	〃	〃	SAT TX Switch
D1027	〃	〃	MODE Switch (FM)
D1028	Not Used		
D1029	1SS53	Si Diode	MODE Switch (CW)
D1030	〃	〃	〃 (SSB)
D1031	〃	〃	〃 (CW)
D1032	〃	〃	〃 (LSB)
D1033	〃	〃	〃 (USB)
D1034	Not Used		
D1035	〃		
D1036	1SS53	Si Diode	TX MOD Indic. Signal Detector
D1037	〃	〃	〃
D1038	1SS53	Si Diode	TX CW Controller
D1039	〃	〃	Threshold Level Compensator (for Q1033)
D1040	〃	〃	TX CW Controller
D1041	〃	〃	〃
D1042	〃	〃	〃
D1043	〃	〃	Gate Protector (for Q1035)
D1044	〃	〃	〃
D1045	〃	〃	Threshold Level Compensator (for Q1037)
D1046	〃	〃	Reverse Voltage Protector (for Q1038)
D1047	〃	〃	〃 (for RL1001)
D1048	〃	〃	〃 (for Q1039)
D1049	〃	〃	〃 (for RL1002)
D1050	〃	〃	TX Tone Burst Switch
D1051	Not Used		
D1052	〃		
D1053	〃		
D1054	〃		
D1055	1SS53	Si Diode	TX MOD Indic. Switch
D1056	〃	〃	TX MOD Indic. Disable Switch (CW)
D1057	〃	〃	MODE Switch (for CW)
D1058	MV12	Varistor Diode	Temperature Compensator (for Q1033)
X1001	10.81MHz	Crystal (HC-18/T3P)	TX FM Carrier Mod VCXO
X1002	10.8092MHz	〃 (HC-18/U)	TX CW Carrier Oscillator
X1003	10.8115MHz	〃 (〃)	USB Carrier Oscillator
X1004	10.8085MHz	〃 (〃)	LSB 〃
XF1001	XF-10.8LS	Crystal Filter	TX SSB Filter
TH1001	SDT250	Thermistor	Temperature Compensator (for Q1023)

RX UNIT

PART NO.	DEVICE	TYPE	FUNCTION
Q2001	3SK73Y	MOS FET	RX 1st IF Amplifier (for 50MHz, 144 MHz), RX 2nd IF Amplifier (for 430MHz)
Q2002	2SK125	JFET	RX 2nd Mixer (for 50MHz, 144MHz), RX 3rd Mixer (for 430MHz)
Q2003	2SC460B	Transistor	RX IF SHIFT VCXO
Q2004	2SC535B	〃	RX IF SHIFT VCXO Buffe Amplifier
Q2005	〃	〃	RX 2nd IF Buffer Amplifie (for 50MHz, 144MHz, FM RX 3nd IF Buffer Amplifi (for 430MHz FM)
Q2006	2SC945AP	〃	〃 (〃) 〃 (〃)
Q2007	μPC577H	IC	RX FM Limiter Amplifier
Q2008	2SC1815GR	Transistor	RX FM AF Amplifier
Q2009	3SK73Y	MOS FET	RX 2nd IF Amplifier (for 50MHz, 144MHz SSB, C RX 3rd IF Amplifier (for 430MHz SSB, CW)

Q2010	μPC1037H	IC	RX IF WIDTH Mixer (SSB, CW)
Q2011	"	"	" (")
Q2012	3SK73Y	MOS FET	RX 2nd IF Amplifier (for 50MHz, 144MHz, SSB, CW) RX 3rd IF Amplifier (for 430MHz SSB, CW)
Q2013	μPC1037H	IC	RX Balanced Demodulator (SSB, CW)
Q2014	"	"	RX BFO Premixer
Q2015	2SC460B	Transistor	RX IF WIDTH VCXO
Q2016	2SC945AP	"	RX AGC Buffer Amplifier
Q2017	Not Used		
Q2018	2SC1815GR	Transistor	RX AF Amplifier
Q2019	2SC945AP	"	RX AF Active LPF
Q2020	2SC535B	"	RX NB Buffer Amplifier
Q2021	2SC1583	"	RX NB Amplifier
Q2022	"	"	"
Q2023	"	"	"
Q2024	2SC945AP	"	RX NB AGC Amplifier
Q2025	2SC1815GR	"	RX NB Gate Controller
Q2026	2SC945AP	"	RX FM S-Meter Amplifier
Q2027	"	"	RX FM Noise Amplifier
Q2028	"	"	"
Q2029	2SC1815GR	"	RX FM SQL Switch
Q2030	"	"	RX SCAN Switch (FM)
Q2031	"	"	" (SSB, CW)
Q2032	2SC945AP	"	RX BUSY Indicator Switch
Q2033	2SC1815BL	"	RX AGC DCAmplifier
Q2034	AN6561	IC	RX AGC Buffer Amplifier
Q2035	2SA733	Transistor	RX S-Meter Amplifier (SSB, CW)
Q2036	2SC945AP	"	RX SQL Switch (")
Q2037	"	"	" (")
Q2038	2SA733	"	FM RX 8V Switch
Q2039	AN6561	IC	RX FM Center Tune Buffer Amplifier (dual)
Q2040	2SC945AP	Transistor	RX SCAN Controller (FM)
Q2041	2SA733	"	" (")
Q2042	"	"	" (")
Q2043	"	"	RX FM Center Meter Amplifier
Q2044	"	"	SSB CW RX 8V Switch
Q2045	Not Used		
Q2046	2SC945AP	Transistor	Relay Driver (for RL2001)
Q2047	"	"	RX AF Disable Switch (on NOR TX)
Q2048	"	"	RX AF Buffer Amplifier (for AF OUT)
D2001	FC53M-5	Varactor Diode	RX IF SHIFT VCXO
D2002	1SS53	Si Diode	MODE Switch (FM)
D2003	"	"	" (")
D2004	1S188FM	Ge Diode	RX FM Discriminator
D2005	"	"	"
D2006	Not Used		
D2007	"		
D2008	"		
D2009	1SS53	Si Diode	RX Filter Select Switch (SSB, CW-W)
D2010	"	"	" (")
D2011	"	"	" (SSB)
D2012	"	"	" (CW-N)
D2013	"	"	" (")
D2014	Not Used		
D2015	"		

D2016	Not Used		
D2017	"		
D2018	1SV50	Varactor Diode	RX IF WIDTH VCXO
D2019	Not Used		
D2020	"		
D2021	"		
D2022	"		
D2023	1S188FM	Ge Diode	RX AGC Detector
D2024	"	"	"
D2025	1SS53	Si Diode	"
D2026	1S188FM	Ge Diode	RX FM S-Meter Detector
D2027	"	"	"
D2028	1S1555	Si Diode	Threshold Level Compensator [for RX FM Noise Detector (D2029, 2030)]
D2029	1S188FM	Ge Diode	RX FM Noise Detector
D2030	"	"	"
D2031	"	"	RX AGC Detector
D2032	"	"	"
D2033	1SS53	Si Diode	RX RF GAIN AGC Gate
D2034	"	"	AGC Threshold Level Compensator (for Q1035)
D2035	"	"	RX SQL Switch (SSB, CW)
D2036	Not Used		
D2037	"		
D2038	1SS53	Si Diode	SSB RX 8V Gate
D2039	"	"	CW "
D2040	"	"	RX Filter Select Switch (CW)
D2041	Not Used		
D2042	"		
D2043	1SS53	Si Diode	Reverse Voltage Protector (for Q2046)
D2044	"	"	RX AF Amplifier (Q2018) Disable Switch (NOR TX)
D2045	"	"	RX AGC Buffer Amplifier Limiter
D2046	"	"	Threshold Level Compensator (for Q2034)
D2047	"	"	RX AF Amplifier (Q2048) Disable Switch (NOR TX)
D2048	"	"	RX SCAN Controller (FM)
X2001	11.265MHz	Crystal (HC-18/U3P)	RX IF SHIFT VCXO
X2002	11.205MHz	" (")	RX IF WIDTH VCXO
XF2001	108M15A	Crystal Filter	RX 1st IF Filter (for 50MHz, 144MHz) RX 2nd IF Filter (for 430MHz)
XF2002	XF-10.7LW	"	RX IF WIDTH Filter
XF2003	XF-455MC	"	Optional RX 2nd IF Filter (for 50MHz, 144MHz CW-N) RX3rd IF Filter (for 430MHz CW-N)
CF2001	LF-H15S	Ceramic Filter	RX FM IF Filter
CF2002	Not Used		
CF2003	LF-C2A	Ceramic Filter	RX 2nd IF Filter (for 50MHz, 144MHz SSB, CW) RX 3rd IF Filter (for 430MHz SSB, CW)
CF2004	LF-B20	"	RX FM IF Filter

CD2001	SFD455S4	Ceramic Filter	RX FM Discriminator
TH2001	SDT-250	Thermistor	Temperature Compensator (for Q2029)

CONTROL UNIT

PART NO.	DEVICE	TYPE	FUNCTION
Q3001	μPD7801G-090	IC	CPU
Q3002	μPD5101LC	"	RAM
Q3003	"	"	"
Q3004	μPD8279C-5	"	Frequency Display Controller
Q3005	μPD8255AC-5	"	PIO (for PLL Divider, MODE, REV, FM-CH Data)
Q3006	2SD892O	Transistor	REV Indicator Driver
Q3007	MC14503B	IC	PLL Data Buffer
Q3008	MC14515B	"	Frequency Display Decoder
Q3009	MC14069UB	"	MODE Data Decoder
Q3010	2SC945AP	Transistor	"
Q3011	SN7416N	IC	"
Q3012	MC14001B	"	Beep Oscillator
Q3013	2SC945AP	Transistor	SCAN Stop Switch (PTT)
Q3014	MC14011B	IC	SCAN Controller
Q3015	MC14069UB	"	CPU Reset Switch (Power Up)
Q3016	"	"	VFO Controller
Q3017	"	"	"
Q3018	MC14081B	"	"
Q3019	MC14072B	"	"
Q3020	MC14011B	"	FM-CH Controller
Q3021	MC14013B	"	UP/DOWN Controller
Q3022	2SC945AP	Transistor	FM-CH Indicator Driver
Q3023	μPC7805H	IC	Regulator (+5V Line)
Q3024	2SC945AP	Transistor	CPU Reset Switch
Q3025	μPA80C	IC	FCD Driver
Q3026	"	"	"
Q3027	"	"	"
Q3028	2SC1383R	Transistor	Regulator (+11V for DC-DC Converter)
Q3029	2SC2002L	"	DC-DC Converter Oscillator
D3001	1SS53	Si Diode	Decoder (for Memory Channel Data)
D3002	"	"	" (")
D3003	"	"	" (")
D3004	"	"	" (")
D3005	"	"	TONE SQL Decoder
D3006	"	"	Mem Ch Decoder
D3007	"	"	FM-CH Decoder
D3008	"	"	DIAL LOCK Decoder
D3009	"	"	VFO Select Decoder
D3010	"	"	"
D3011	HZ9C1	Zener Diode	Threshold Level Compensator (for Q3024)
D3012	1SS97	Schottky Barrier Di.	RAM Backup Switch
D3013	"	"	Backup Battery Protector
D3014	1SS53	Si Diode	FM-CH Decoder
D3015	"	"	"
D3016	"	"	UP/DOWN Decoder
D3017	"	"	"
D3018	Not Used		
D3019	1SS53	Si Diode	SSB Decoder
D3020	1SS53	Si Diode	SSB Decoder
D3021	"	"	Beep Oscillator Control
D3022	"	"	Decoder (for Display Data)
D3023	"	"	" (")
D3024	"	"	" (")
D3025	"	"	" (")
D3026	"	"	" (")
D3027	"	"	" (")
D3028	"	"	" (")
D3029	"	"	" (")
D3030	HZ11B1	Zener Diode	Regulator
D3031	1SS53	Si Diode	Rectifier
D3032	HZ3B2	Zener Diode	Clipper (for DC-DC Conve
D3033	1SS53	Si Diode	CLAR/FM-CH Decoder
D3034	"	"	"
X3001	CSA4.00MT	Ceramic Resonator	CPU Clock

PS UNIT

PART NO.	DEVICE	TYPE	FUNCTION
Q601	2SD717O	Transistor	Pass Tran for +13.8V Reg.
D601	S5VB10	Si Diode Bridge	Rectifier

AVR UNIT

PART NO.	DEVICE	TYPE	FUNCTION
Q701	2SC496Y	Transistor	Regulator
Q702	2SC945AP	"	"
D701	10D1	Si Diode	Rectifier
D702	HZ6B2	Zener Diode	Regulator Reference

SATELLITE UNIT

PART NO.	DEVICE	TYPE	FUNCTION
Q4001	2SA733AQ	Transistor	TX Carrier Oscillator Sideband Selector (USB)
Q4002	"	"	" (LSB)
Q4003	2SC460B	"	TX Carrier Oscillator
Q4004	Not Used		
Q4005	"		
Q4006	2SC945AP	Transistor	TX Amplifier (SSB)
Q4007	μPC1037H	IC	TX Balanced Modulator (
Q4008	2SC945AP	Transistor	TX AF Amplifier (FM)
Q4009	2SC460B	"	TX FM Carrier Mod. VCX
Q4010	"	"	TX CW Carrier Oscillator
Q4011	3SK73Y	MOS FET	TX 1st IF Buffer Amplifie (FM, CW)
Q4012	2SA733AQ	Transistor	MODE Switch (FM)
Q4013	Not Used		
Q4014	2SA733AQ	Transistor	MODE Switch (CW)
Q4015	"	"	" (SSB)
Q4016	2SK192A-GR	JFET	PLL VCO (for SAT VFO)
Q4017	2SK241Y	"	PLL Buffer Amplifier
Q4018	2SC535B	Transistor	PLL Output Buffer

Q4019	HD10551	IC	1/44 Divider (PLL Out)
Q4020	μPC1037H	"	SAT VFO Premixer
Q4021	2SK241Y	JFET	PLL Buffer Amplifier
Q4022	μPC1037H	IC	PLL Mixer
Q4023	2SC535B	Transistor	PLL IF Amplifier
Q4024	2SC460B	"	PLL Local Oscillator (SAT VFO)
Q4025	2SC535B	"	PLL Local Oscillator Multiplier (x9)
Q4026	MC14094BCP	IC	Latch (SAT VFO PLL Divider Data)
Q4027	"	"	" (")
Q4028	TC9122P	"	PLL Programmable Divider
Q4029	TC5082P	"	PLL Reference Oscillator, 1/1024 Divider
Q4030	TC5081AP	"	PLL Phase Detector
Q4031	2SK30AY	JFET	PLL Loop Filter Inverter
Q4032	2SC945AP	Transistor	PLL Loop Filter
Q4033	"	"	Switch (SAT VFO PLL Data)
Q4034	2SA733AQ	"	PLL Unlock Signal Amplifier
Q4035	2SC945AP	"	PLL Unlock Switch
Q4036	"	"	Inverter (SAT VFO PLL Data)
Q4037	μPC78L05	IC	Regulator (+5V Line)
Q4038	SN7416N	"	Inverter (MODE Data)
Q4039	2SC945AP	Transistor	TX 1st IF Buffer Amplifier (SSB)
D4001	1SS53	Si Diode	TX Carrier Oscillator Sideband Select Decoder (USB)
D4002	"	"	" (LSB)
D4003	"	"	" (USB)
D4004	"	"	" (LSB)
D4005	Not Used		
D4006	FC53M-5	Varactor Diode	TX FM Modulator
D4007	MV103	Varistor Diode	Temperature Compensator [for TX FM Modulator (D4006)]
D4008	WZ050	Zener Diode	Regulator (for TX FM Carrier Mod Oscillator)
D4009	Not Used		
D4010	"		
D4011	"		
D4012	"		
D4013	"		
D4014	1SS53	Si Diode	MODE Switch (SAT CW)
D4015	"	"	" (")
D4016	"	"	" (SAT FM)
D4017	"	"	KEY Switch
D4018	1S1588	"	TX 1st IF Limiter (SAT FM, SAT CW)
D4019	"	"	" (")
D4020	1SS53	"	MODE Switch (")
D4021	"	"	" (SAT SSB)
D4022	"	"	" (SAT FM)
D4023	Not Used		
D4024	1SS53	Si Diode	MODE Switch (for SAT CW)
4025	"	"	" (SAT LSB)
026	"	"	" (SAT USB)
D4027	"	"	" (SAT FM)
D4028	Not Used		
D4029	"		
D4030	"		
D4031	1T25	Varactor Diode	PLL VCO (SAT VFO)
D4032	1SS53	Si Diode	PLL Local Oscillator Frequency Select Switch
D4033	"	"	"
D4034	"	"	"
X4001	10.7015MHz	Crystal (HC-18/U)	TX Carrier Oscillator (LSB)
X4002	10.6985MHz	" (")	" (USB)
X4003	10.7MHz	" (HC-18/T3P)	TX FM Carrier Mod VCXO
X4004	10.6992MHz	" (HC-18/U)	TX CW Carrier Oscillator
X4005	6.4713MHz	" (")	PLL Local Oscillator (for SAT VFO)
X4006	4.5056MHz	" (")	PLL Reference Oscillator
XF4001	XF-10.7LS	Crystal Filter	SAT TX SSB Filter
TH4001	33D28	Thermistor	Temperature Compensator (for Q4016)

50 MHz MODULE: RF UNIT

PART NO.	DEVICE	TYPE	FUNCTION
Q5001	3SK74L	MOS FET	RX RF Amplifier
Q5002	3SK51-03	"	RX 1st Mixer
Q5003	2SK125	JFET	RX 1st IF Amplifier
Q5004	2SK241Y	"	TX 2nd Mixer
Q5005	"	"	"
Q5006	3SK73Y	MOS FET	TX RF Buffer Amplifier
Q5007	2SC460B	Transistor	TX RF Predriver
Q5008	2SC2053	"	TX RF Driver
Q5009	2SA733AQ	"	TX AFP Amplifier
Q5010	2SD471L	"	Regulator (TX 9V)
Q5011	"	"	" (")
Q5012	2SK125	JFET	" (")
D5001	MV13	Varistor Diode	Temperature Compensator (for Q5001)
D5002	1T25	Varactor Diode	RX Auto-Tune Circuit
⌇	⌇	⌇	⌇
D5005	1T25	Varactor Diode	RX Auto-Tune Circuit
D5006	1SV50	"	"
D5007	1SS53	Si Diode	T/R Switch (RX Out)
D5008	"	"	" (TX In)
D5009	1T25	Varactor Diode	TX Auto-Tune Circuit
⌇	⌇		⌇
D5013	1T25	Varactor Diode	TX Auto-Tune Circuit
D5014	1SS53	Si Diode	Temperature Compensator (for Q5006)
D5015	1S1554	"	" (for Q5008)
D5016	Not Used		
D5017	1SS97	Schottky Barrier Di.	Switch (for PO Meter)
D5018	1SS53	Si Diode	AFP → ALC
D5019	"	"	Regulator (TX 9V)
D5020	WZ090	Zener Diode	" (")
D5021	V06B	Si Diode	Reverse Voltage Protector (for RL5001)

D5022	1T25	Varactor Diode	TX Auto-Tune Circuit
D5023	1SS97	Schottky Barrier Di.	Switch (ALC)
XF5001	10.8M30B	Crystal Filter	RX 1st IF Filter
TH5001	31D26	Thermistor	Temperature Compensator (RX Output Level)
TH5002	25D29	"	" (TX Input Level)

50 MHz MODULE: PLL, VCO UNITS

PART NO.	DEVICE	TYPE	FUNCTION
Q6001	2SK192A-GR	JFET	PLL VCO (RX 1st, TX 2nd Local Oscillator)
Q6002	2SK241Y	"	VCO Buffer Amplifier
Q6003	3SK73Y	MOS FET	PLL Output Buffer Amplifier (RX 1st, TX 2nd Local)
Q6004	2SK241Y	JFET	PLL Buffer Amplifier
Q6005	SN16913P	IC	PLL Mixer
Q6006	2SC945AP	Transistor	PLL IF Buffer Amplifier
Q6007	"	"	"
Q6008	TC9122P	IC	PLL Programmable Divider
Q6009	TC5081AP	"	PLL Phase Detector
Q6010	2SC945AP	Transistor	PLL Active LPF
Q6011	"	"	"
Q6012	"	"	PLL VCO (Q6001) Band Switch
Q6013	2SC460B	"	PLL Local Oscillator
Q6014	2SC945AP	"	SAT VFO Buffer Amplifier
Q6015	"	"	NOR VFO Buffer Amplifier
Q6016	SN76514N	IC	PLL Local Premixer
Q6017	2SC535B	Transistor	PLL Local Buffer
Q6018	2SC945AP	"	PLL Unlock Switch
Q6019	2SA564A	"	PLL Unlock Signal Amplifier
Q6020	2SC945AP	"	PLL Reference Oscillator
Q6021	MB84024B	IC	PLL Reference 1/64 Divider
Q6022	2SD892Q	Transistor	STBY Switch
Q6023	MC14081B	IC	NOR/SAT TX Select Data and STROBE Decoder
Q6024	MC14560B	"	VCO Band Decoder
Q6025	MC14094B	"	Latch (PLL Divider Data)
Q6026	2SC945AP	Transistor	Switch (")
Q6027	μPC78L05	IC	Regulator (+5V Line)
Q6028	MC14504B	"	PLL Divider Data Decoder
Q6029	2SC945AP	Transistor	VFO Selector (SAT VFO)
Q6030	"	"	" (NOR VFO)
Q6031	2SD892Q	"	Relay Driver (for RL6001)
Q6032	μPC7808H	IC	Regulator (+8V Line)
D6001	1SV50	Varactor Diode	PLL VCO Control
D6002	"	"	"
D6003	1SS53	Si Diode	PLL VCO (Q6001) Band Switch
D6004	1SV50	Varactor Diode	PLL Auto-Tune Circuit
D6005	1SS53	Si Diode	T/R Switch (RX Local)
D6006	"	"	" (TX Local)
D6007	1SS53	Si Diode	VFO Selector (SAT VFO)
D6008	"	"	" (NOR VFO)
D6009	"	"	" (SAT VFO)
D6010	"	"	" (NOR VFO)
D6011	V06B	"	Reverse Voltage Protector (for Q6022)
D6012	1SS53	"	NOR TX STBY Decoder
D6013	"	"	SAT TX STBY Decoder
D6014	"	"	NOR Strobe Decoder
D6015	"	"	SAT Strobe Decoder
D6016	V06B	"	Reverse Voltage Protector (for Q6031)
D6017	1SS53	"	PLL NOR Data Decoder
D6018	"	"	PLL SAT TX Decoder
D6019	"	"	PLL SAT Data Decoder
D6020	Not Used		
D6021	1SS53	Si Diode	PLL SAT Data Decoder
D6022	Not Used		
D6023	1SS53	Si Diode	PLL NOR Data Decoder
D6024	Not Used		
D6025	1SS53	Si Diode	PLL NOR Data Decoder
X6001	27.4035MHz	Crystal (HC-18/U3P)	PLL Local Oscillator
X6002	6.4MHz	" (HC-18/U)	PLL Reference Oscillator
TH6001	31D26	Thermistor	Temperature Compensator (for Q6001)

50 MHz MODULE: PA UNIT

PART NO.	DEVICE	TYPE	FUNCTION
Q7001	M57735	IC	TX RF Power Amplifier
D7001	V06B	Si Diode	Reverse Voltage Protector (for RL7001)
D7002	1S1588	"	TX ALC Detector

144 MHz MODULE: RF UNIT

PART NO.	DEVICE	TYPE	FUNCTION
Q5001	3SK74L	MOS FET	RX RF Amplifier
Q5002	3SK51-03	"	RX 1st Mixer
Q5003	2SK125*	JFET	RX 1st IF Amplifier
Q5004	2SK241Y	"	TX 2nd Mixer
Q5005	"	"	"
Q5006	3SK70	MOS FET	TX RF Buffer Amplifier
Q5007	2SC2538	Transistor	TX RF Driver
Q5008	2SA733AQ	"	TX AFP Amplifier
Q5009	2SD471L	"	Regulator (TX 9V)
Q5010	"	"	" (")
Q5011	2SK125	JFET	" (")
D5001	MV13	Varistor Diode	Temperature Compensator (for Q5001)
D5002	1T25	Varactor Diode	RX Auto-Tune Circuit
⌇	⌇	⌇	⌇
D5006	1T25	Varactor Diode	RX Auto-Tune Circuit
D5007	1SS53	Si Diode	T/R Switch (RX Out)
D5008	"	"	" (TX In)
D5009	1T25	Varactor Diode	TX Auto-Tune Circuit
⌇	⌇	⌇	⌇
D5012	1T25	Varactor Diode	TX Auto-Tune Circuit
D5013	1S1555	Si Diode	Temperature Compensator (for Q5007)
D5014	1SS53	"	Temperature Compensator (for Q5008)
D5015	"	"	AFP→ALC
D5016	1SS97	Schottky Barrier Di.	Switch (for PO Meter)
D5017	WZ090	Zener Diode	Regulator (TX 8V)
D5018	1SS53	Si Diode	" (")
D5019	V06B	"	Reverse Voltage Protector (for RL5001)
D5020	1SS97	Schottky Barrier Di.	Switch (ALC)
XF5001	10.8M30B	Crystal Filter	RX 1st IF Filter
TH5001	25D29	Thermistor	Temperature Compensator (RX Output Level)
TH5002	31D26	"	" (for TX Input Level)
TH5003	D22A	"	" (for Q5006)

144 MHz MODULE: PLL, VCO UNITS

PART NO.	DEVICE	TYPE	FUNCTION
Q6001	2SK192A-GR	JFET	PLL VCO (RX 1st, TX 2nd Local Oscillator)
6002	2SK241Y	"	VCO Buffer Amplifier
Q6003	3SK73Y	MOS FET	PLL Output Buffer Amplifier (RX 1st, TX 2nd Local)
Q6004	2SK241Y	JFET	PLL Buffer Amplifier
Q6005	SN16913P	IC	PLL Mixer
Q6006	2SC945AP	Transistor	PLL IF Buffer Amplifier
Q6007	"	"	"
Q6008	TC9122P	IC	PLL Programmable Divider
Q6009	TC5081AP	"	PLL Phase Detector
Q6010	2SC945AP	Transistor	PLL Active LPF
Q6011	"	"	"
Q6012	"	"	PLL VCO (Q6001) Band Switch
Q6013	2SC460B	"	PLL Local Oscillator
Q6014	2SC945AP	"	SAT VFO Buffer Amplifier
Q6015	"	"	NOR VFO Buffer Amplifier
Q6016	SN76514N	IC	PLL Local Premixer
Q6017	2SC535B	Transistor	PLL Local Buffer Amplifier
Q6018	2SC945AP	"	PLL Unlock Switch
Q6019	2SA564A	"	PLL Unlock Signal Amplifier
Q6020	2SC945AP	"	PLL Reference Oscillator
Q6021	MB84024B	IC	PLL Reference 1/64 Divider
Q6022	2SD892Q	Transistor	STBY Switch
Q6023	MC14081B	IC	NOR/SAT TX Select Data and Strobe Decoder
Q6024	MC14560B	"	VCO Band Decoder
Q6025	MC14094B	"	Latch (PLL Divider Data)
Q6026	2SC945AP	Transistor	Switch (")
Q6027	µPC78L05	IC	Regulator (+5V Line)
Q6028	MC14504B	"	PLL Divider Data Decoder
Q6029	2SC945AP	Transistor	VFO Selector (SAT VFO)
Q6030	"	"	" (NOR VFO)
Q6031	2SD892Q	"	Relay Driver (for RL6001)
Q6032	µPC7808H	IC	Regulator (+8V Line)
D6001	1T25	Varactor Diode	PLL VCO Control
D6002	"	"	"
D6003	1SS53	Si Diode	PLL VCO (Q6001) Band Switch
D6004	1T25	Varactor Diode	PLL Auto-Tune Circuit
D6005	1SS53	Si Diode	T/R Switch (RX Local)
D6006	"	"	" (TX Local)
D6007	"	"	VFO Selector (SAT VFO)
D6008	"	"	" (NOR VFO)
D6009	"	"	" (SAT VFO)
D6010	"	"	" (NOR VFO)
D6011	V06B	"	Reverse Voltage Protector (for Q6022)
D6012	1SS53	"	NOR TX STBY Decoder
D6013	"	"	SAT TX Decoder
D6014	"	"	NOR Strobe Decoder
D6015	"	"	SAT Strobe Decoder
D6016	V06B	"	Reverse Voltage Protector (for Q6031)
D6017	1SS53	"	PLL NOR Data Decoder
D6018	"	"	PLL SAT TX Decoder
D6019	"	"	PLL SAT Data Decoder
D6020	"	"	"
D6021	Not Used		
D6022	"		
D6023	1SS53	Si Diode	PLL NOR Data Decoder
D6024	"	"	"
D6025	"	"	"
D6026	"	"	"
X6001	60.7018MHz	Crystal (HC-18/U3P)	PLL Local Oscillator

X6002	6.4MHz	Crystal (HC-18/U)	PLL Reference Oscillator
TH6001	31D26	Thermistor	Temperature Compensator (for Q6001)

144 MHz MODULE: PA UNIT

PART NO.	DEVICE	TYPE	FUNCTION
Q7001	M57713	IC	TX RF Power Amplifier
D7001	V06B	Si Diode	Reverse Voltage Protector (for RL5001)
D7002	1SS97	Schottky Barrier Di.	TX ALC Detector

430/440 MHz MODULES: RF UNIT

PART NO.	DEVICE	TYPE	FUNCTION
Q5001	3SK121	GaAs FET	RX RF Amplifier
Q5002	2SK125	JFET	"
Q5003	ND487C1-3R	IC (Ring Module)	RX 1st Mixer
Q5004	3SK73Y	MOS FET	RX 1st IF Amplifier
Q5005	3SK51-03	"	RX 2nd Mixer
Q5006	2SK241Y	JFET	TX 2nd Mixer
Q5007	"	"	"
Q5008	3SK73Y	MOS FET	TX 2nd IF Buffer Amplifier
Q5009	ND487C2-3R	IC (Ring Module)	TX 3rd Mixer
Q5010	2SK125	JFET	TX RF Buffer Amplifier
Q5011	2SC2407	Transistor	TX RF Predriver
Q5012	2SC1426	"	TX RF Driver
Q5013	2SA733AQ	"	TX AFP Amplifier
Q5014	2SC2026	"	RX 1st/TX 3rd Local Buffer Amplifier
Q5015	2SC460B	"	2nd Local Oscillator
Q5016	"	"	2nd Local Buffer Amplifier
D5001	1SS53	Si Diode	T/R Switch (RX Out)
D5002	"	"	" (TX In)
D5003	"	"	Temperature Compensator (for Q5008)
D5004	1S1555	"	" (for Q5011)
D5005	"	"	" (for Q5012)
D5006	1SS53	"	" (for Q5013)
D5007	1SS97	Schottky Barrier Di.	Switch (for PO Meter)
D5008	1SS53	Si Diode	AFP → ALC
D5009	V06B	"	Reverse Voltage Protector (for RL5001)
D5010	MI301	PIN Diode	T/R Switch (RX 1st Local)
D5011	"	"	" (TX 3rd Local)
D5012	1SS53	Si Diode	" (RX 2nd Local)
D5013	"	"	" (TX 2nd Local)
D5014	1SS97	Schottky Barrier Di.	Switch (ALC)
X5001	56.805MHz	Crystal (HC-18/U3P)	2nd Local Oscillator
XF5001	XF-67JX	Crystal Filter	RX 1st IF Filter
TH5001	25D29	Thermistor	Temperature Compensator (RX Output Level)
TH5002	31D26	"	" (for TX Input Level)

430/440 MHz MODULES: PLL, VCO UNITS

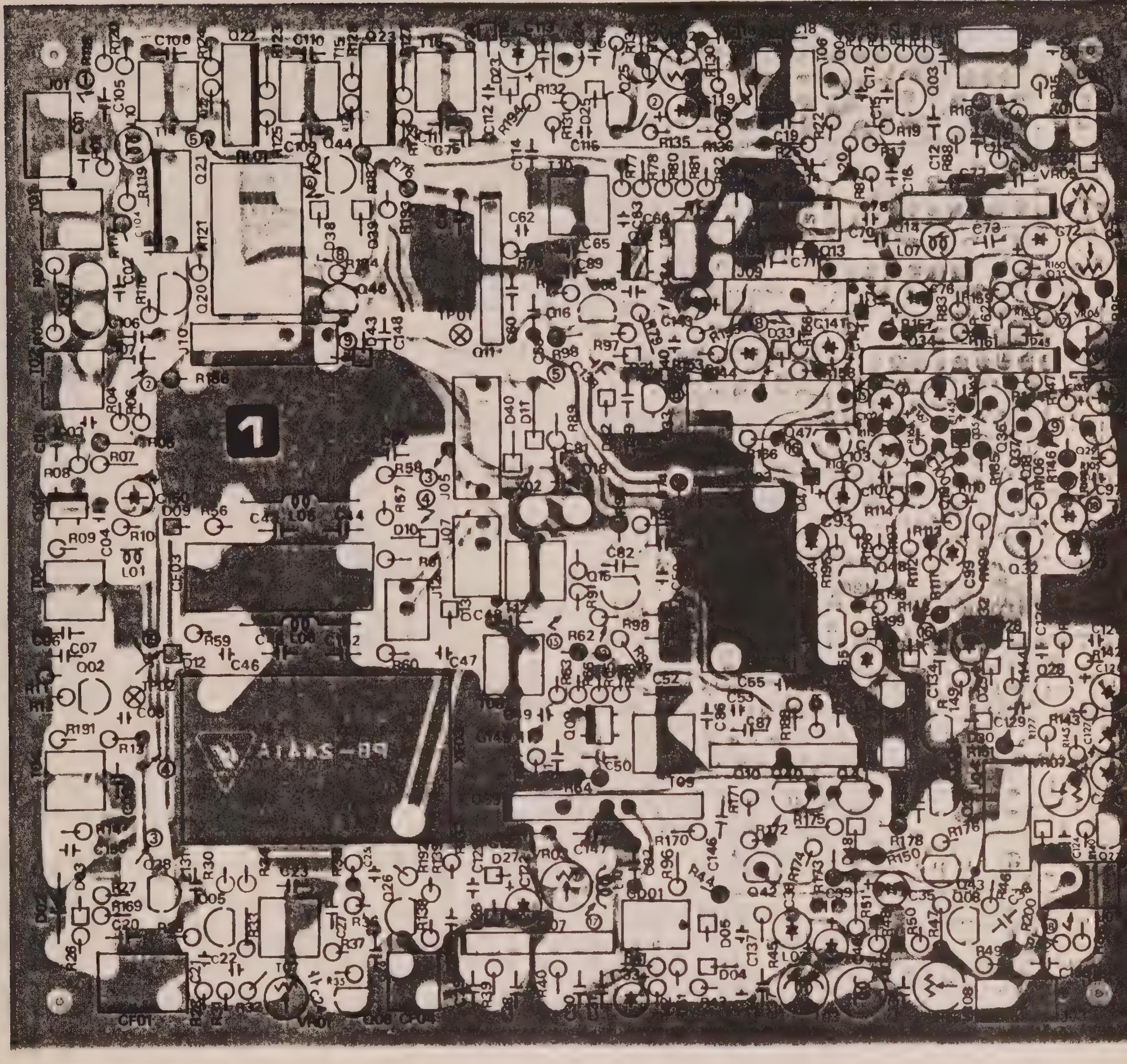
PART NO.	DEVICE	TYPE	FUNCTION
Q6001	2SK192A-GR	JFET	PLL-1 VCO (RX 1st/TX 3rd Local Oscillator)
Q6002	2SK241Y	"	PLL-1 VCO Buffer Amplifier
Q6003	2SC2026	Transistor	PLL-1 Output Tripler (for RX 1st/TX 3rd Local)
Q6004	2SK241Y	JFET	PLL-1 VCO Buffer Amplifier
Q6005	SN16913P	IC	PLL-1 Mixer
Q6006	2SC945AP	Transistor	PLL-1 IF Buffer Amplifier
Q6007	"	"	"
Q6008	TC9122P	IC	PLL-1 Programmable Divider
Q6009	TC5082P	"	PLL-1 Reference Oscillator, 1/256 Divider
Q6010	TC5081AP	"	PLL-1 Phase Detector
Q6011	2SA733AQ	Transistor	PLL Unlock Signal Amplifier
Q6012	2SC945AP	"	PLL Unlock Switch
Q6013	2SC460B	"	PLL-2 Local Oscillator, x2 Multiplier
Q6014	SN16913P	IC	PLL-2 Mixer
Q6015	2SC945AP	Transistor	PLL-2 IF Buffer Amplifier
Q6016	MC145143P	IC	PLL-2 Phase Detector, Programmable Divider
Q6017	2SK192A-GR	JFET	PLL-2 VCO
Q6018	2SK241Y	"	PLL-2 VCO Buffer Amplifier
Q6019	"	"	"
Q6020	2SC945AP	Transistor	PLL-2 Reference (NOR VFO) Buffer Amplifier
Q6021	"	"	PLL-2 Reference (SAT VFO) Buffer Amplifier
Q6022	"	"	PLL-2 Reference (NOR VFO or SAT VFO) Buffer Amplifier
Q6023	TC9122P	IC	PLL-2 Reference (NOR VFO or SAT VFO) 1/96 Divider
Q6024	2SC945AP	Transistor	PLL-2 Reference Selector (NOR VFO)
Q6025	"	"	" (SAT VFO)
Q6026	2SD892Q	"	Relay Driver (for RL6001)
Q6027	µPC78L05	IC	Regulator (+5V Line)
Q6028	MC14094B	"	Latch (PLL-1 Divider Data)
Q6029	MC14504B	"	PLL-1 Divider Data Decoder
Q6030	MC14081B	"	NOR/SAT TX Select Data and Strobe Decoder
Q6031	2SD892Q	Transistor	STBY Switch
Q6032	2SC945AP	"	Switch (PLL-1 Divider Data)
Q6033	µPC7808H	IC	Regulator (+8V Line)
D6001	1T25	Varactor Diode	PLL-1 (RX 1st/TX 3rd Local Oscillator)
D6002	"	"	" (")
D6003	1SS53	Si Diode	PLL-1 Unlock Switch
D6004	"	"	PLL-2 Unlock Switch
D6005	1T25	Varactor Diode	PLL-2 VCO

D6006	1SS53	Si Diode	PLL-2 Reference Selector (NOR VFO)
D6007	"	"	" (")
D6008	"	"	" (SAT VFO)
D6009	"	"	" (")
D6010	V06B	"	Reverse Voltage Protector (for Q3026)
D6011	1SS53	"	PLL NOR Data Decoder
D6012	"	"	PLL SAT TX Decoder
D6013	"	"	NOR Strobe Decoder
D6014	"	"	SAT Strobe Decoder
D6015	"	"	SAT TX Decoder
D6016	"	"	NOR TX STBY Decoder
D6017	V06B	"	Reverse Voltage Protector (for Q6031)
D6018	1SS53	"	PLL NOR Data Decoder
D6019	"	"	"
D6020	Not Used		
D6021	1SS53	Si Diode	PLL NOR Data Decoder
D6022	"	"	PLL SAT Data Decoder
D6023	"	"	"
D6024	"	"	"
D6025	"	"	"
X6001	8.5333MHz	Crystal (HC-18/U)	PLL-2 Local Oscillator
X6002	57.4333MHz	" (HC-18/U3P)	PLL-1 Reference Oscillator
TH6001	31D26	Thermistor	Temperature Compensator (for Q6001)
TH6002	"	"	" (for Q6017)
PTH 6001	PTH-2928	Posistor	Temperature Compensator (for X6002)

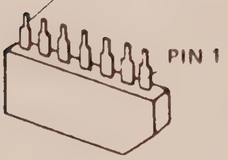
430/440 MHz MODULES: PA UNIT

PART NO.	DEVICE	TYPE	FUNCTION
Q7001	S-AU4	IC	TX RF Power Amplifier
D7001	V06B	Si Diode	Reverse Voltage Protector (for RL7001)
D7002	1SS97	Schottky Barrier Di.	TX ALC Detector

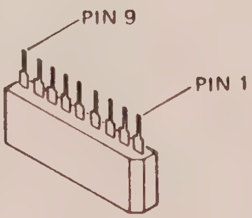
RX UNIT PARTS LAYOUT



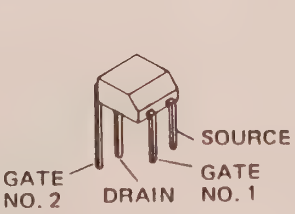
Viewed from component side



µPC577H
µPC1037H

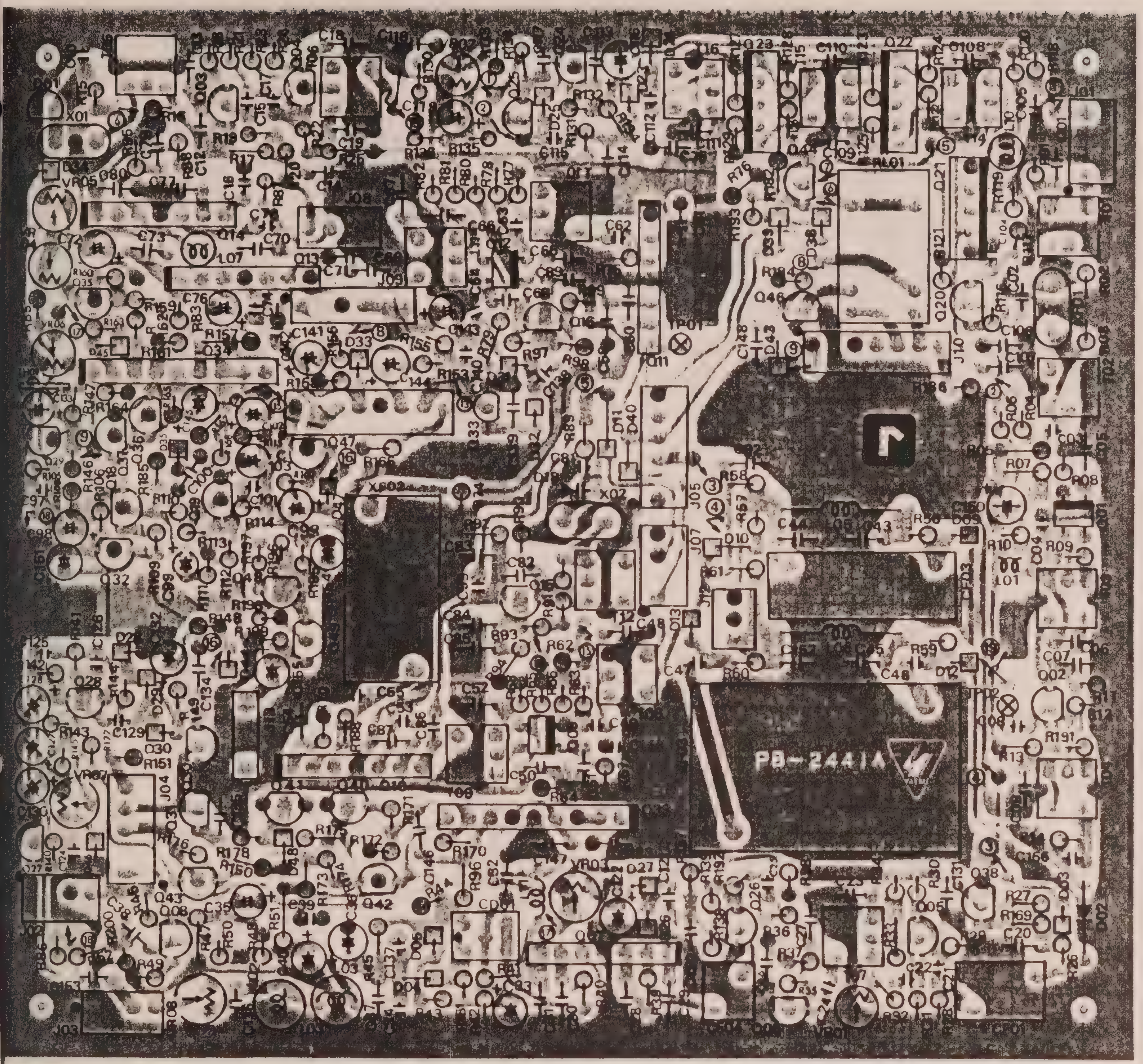


AN6561

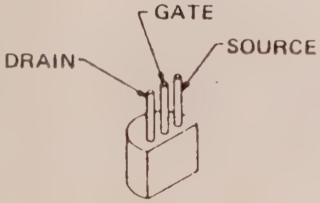


3SK73Y

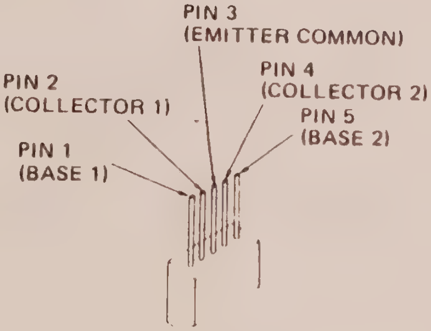
RX UNIT PARTS LAYOUT



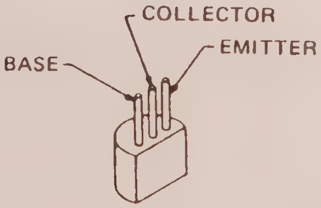
Viewed from solder side



2SK125



2SC1583



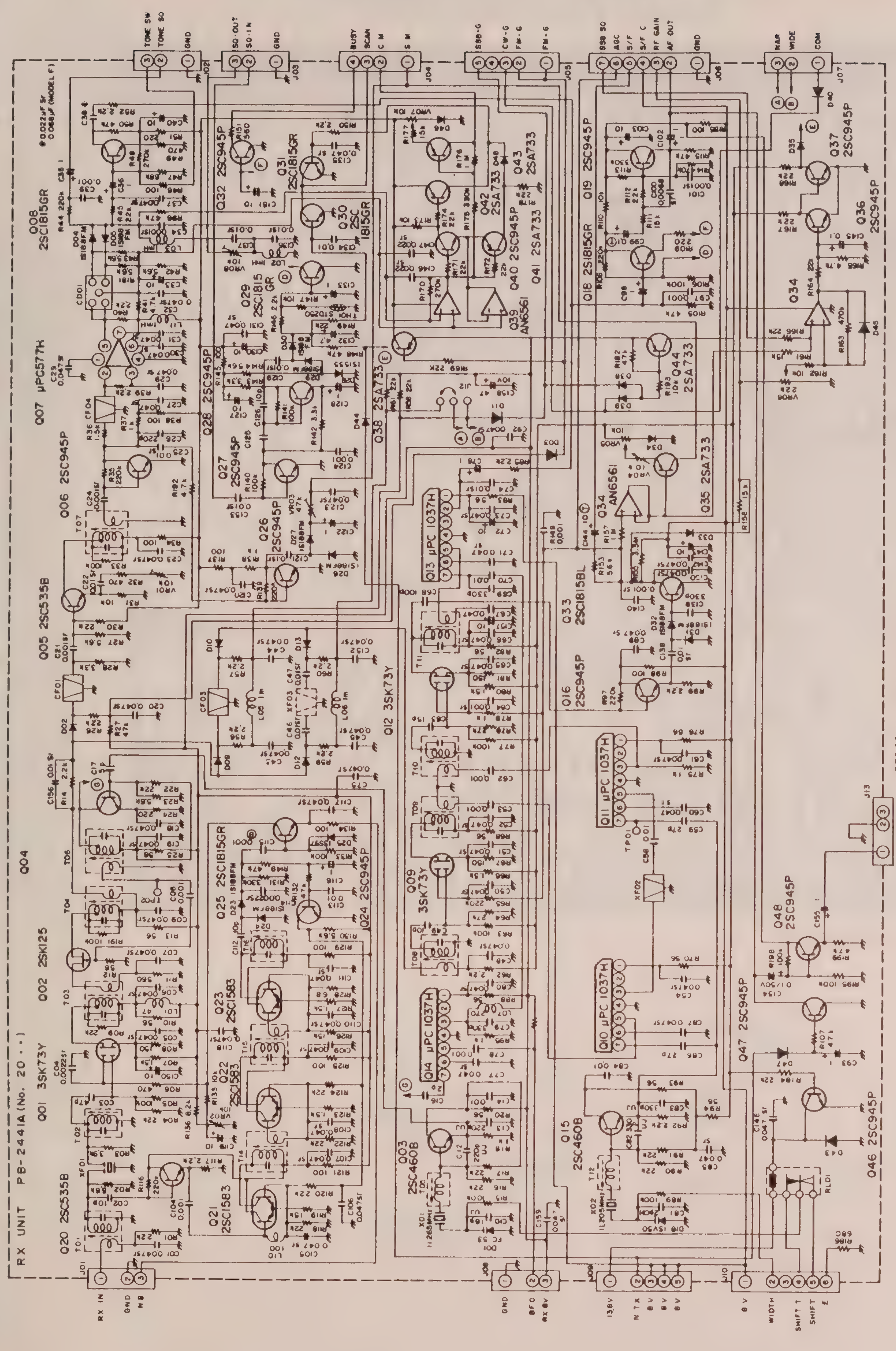
2SA733 2SC945AP
2SC460B 2SC1815BL
2SC535B 2SC1815GR

RX UNIT VOLTAGE CHART (DC VOLTS)

	E(S)	C(D)	B(G1)	(G2)	REMARKS
Q2001	1.4	8.1	1.5	2.4	
Q2002	2.9	7.7	0		
Q2003	3.6	7.8	3.6		
Q2004	0.8	7.8	1.5		
Q2005	0.9	7.9	1.6		
Q2006	0	3.3	0.7		
Q2008	0.6	1.6	1.2		
Q2009	1.5	7.2	1.6	3.0	
Q2012	1.5	7.2	1.6	3.0	
Q2015	3.0	7.4	3.6		
Q2016	5.5	7.8	6.0		
Q2018	0.8	4.7	1.4		
Q2019	3.6	7.9	4.1		
Q2020	3.7	7.7	4.4		
Q2021	2.1	7.7	3.2		
Q2022	2.6	7.9	3.2		
Q2023	1.9	7.9	2.5		
Q2024	0	6.4	0.4		
Q2025	0	2.4	0		
Q2026	0	0	0		
Q2027	0	0.2	0.2		
Q2028	0.2	0	0		
Q2029	0	1.4	0.8		
Q2030	0	0.1	0.6		
Q2031	0	0.1	0.1		
Q2032	0	12.1	0.4		
Q2033	0	3.2	0		
Q2035	3.2	0	3.3		
Q2036	0	0	0.6		
Q2037	0	5.6	0		
Q2038	8.1	7.9	8.0		
Q2040	4.2	7.9	4.0		
Q2041	4.2	0	4.0		
Q2042	7.9	0	7.9		
Q2043	3.8	0.1	3.1		
Q2044	8.1	7.5	7.3		
Q2046	0	13.7	0		
Q2047	0	0	0		
Q2048	3.2	7.9	3.8		

	1	2	3	4	5	6	7	8	9	REMARKS
Q2007	5.2	1.6	1.6	0	4.1	2.6	7.7			
Q2010	6.7	5.9	5.5	0	2.9	2.9	2.9			
Q2011	6.5	5.6	4.8	0	3.0	3.0	3.0			
Q2013	7.2	6.3	5.9	0	3.2	3.2	3.2			
Q2014	6.9	6.0	5.3	0	3.1	3.1	3.1			
Q2034	8.1	6.8	2.3	2.7	0	2.9	3.2	3.2	8.1	
Q2039	7.9	4.2	4.2	4.2	0	4.2	4.2	4.1	7.9	

RX UNIT SCHEMATIC DIAGRAM

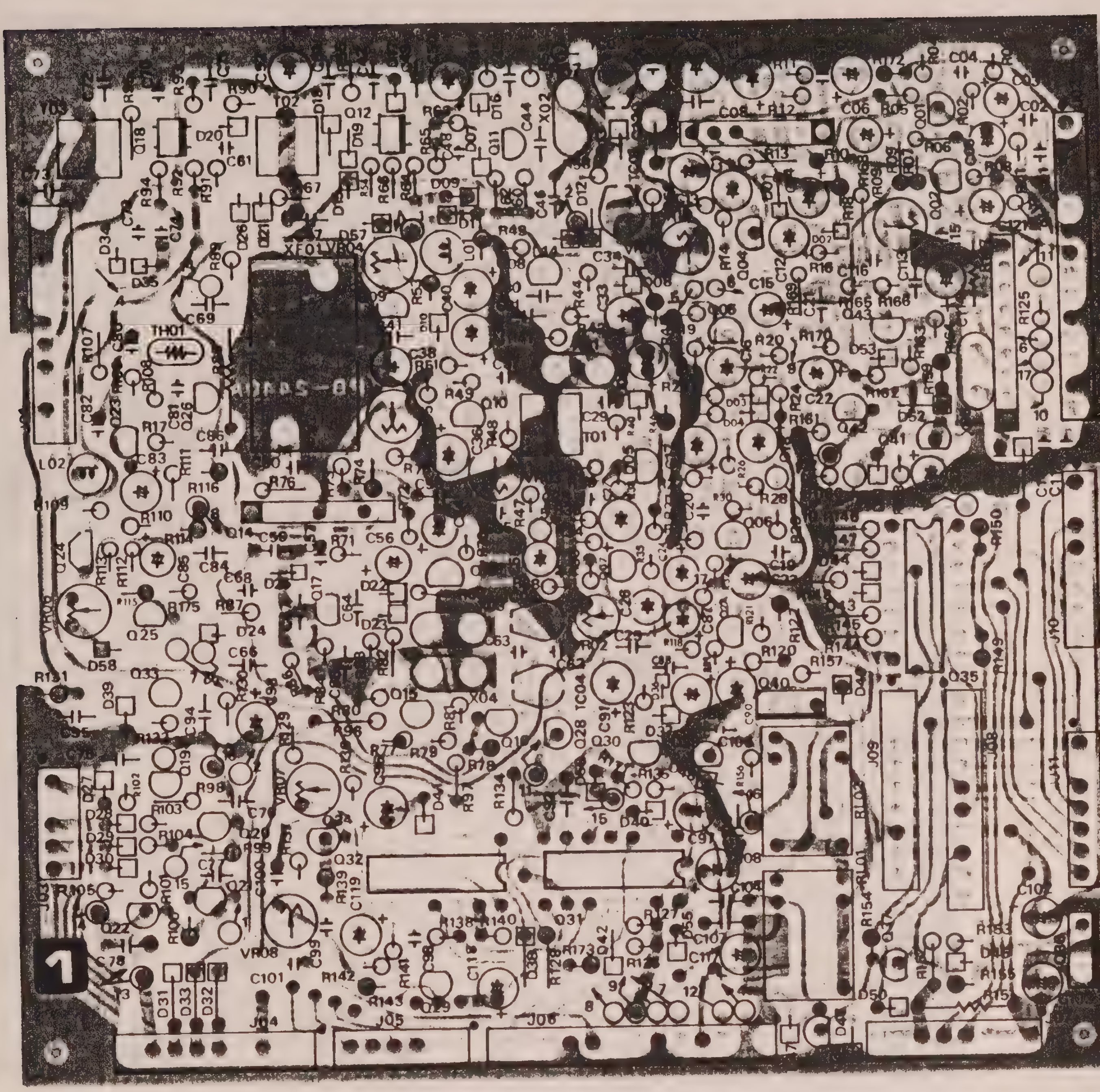


RESISTOR VALUES ARE IN Ω, 1/4W. CAPACITOR VALUES ARE IN μF, 50wv AND INDUCTOR VALUES ARE IN HENRIES, UNLESS OTHERWISE NOTED

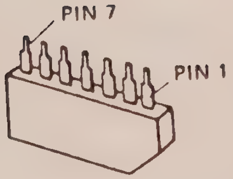
ELECTROLYTIC CAPACITOR VALUES ARE IN μF, 16wv UNLESS OTHERWISE NOTED

DIODES ARE TYPE 1SS53 UNLESS OTHERWISE NOTED

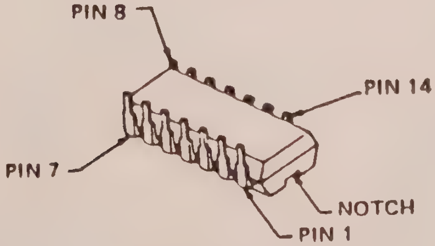
TX UNIT PARTS LAYOUT



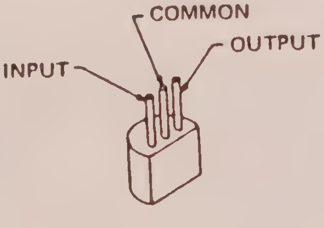
Viewed from component sid



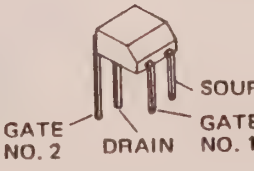
µPC1037H
µPC1158H2



MC14011B
MC14069UB
MC14081B

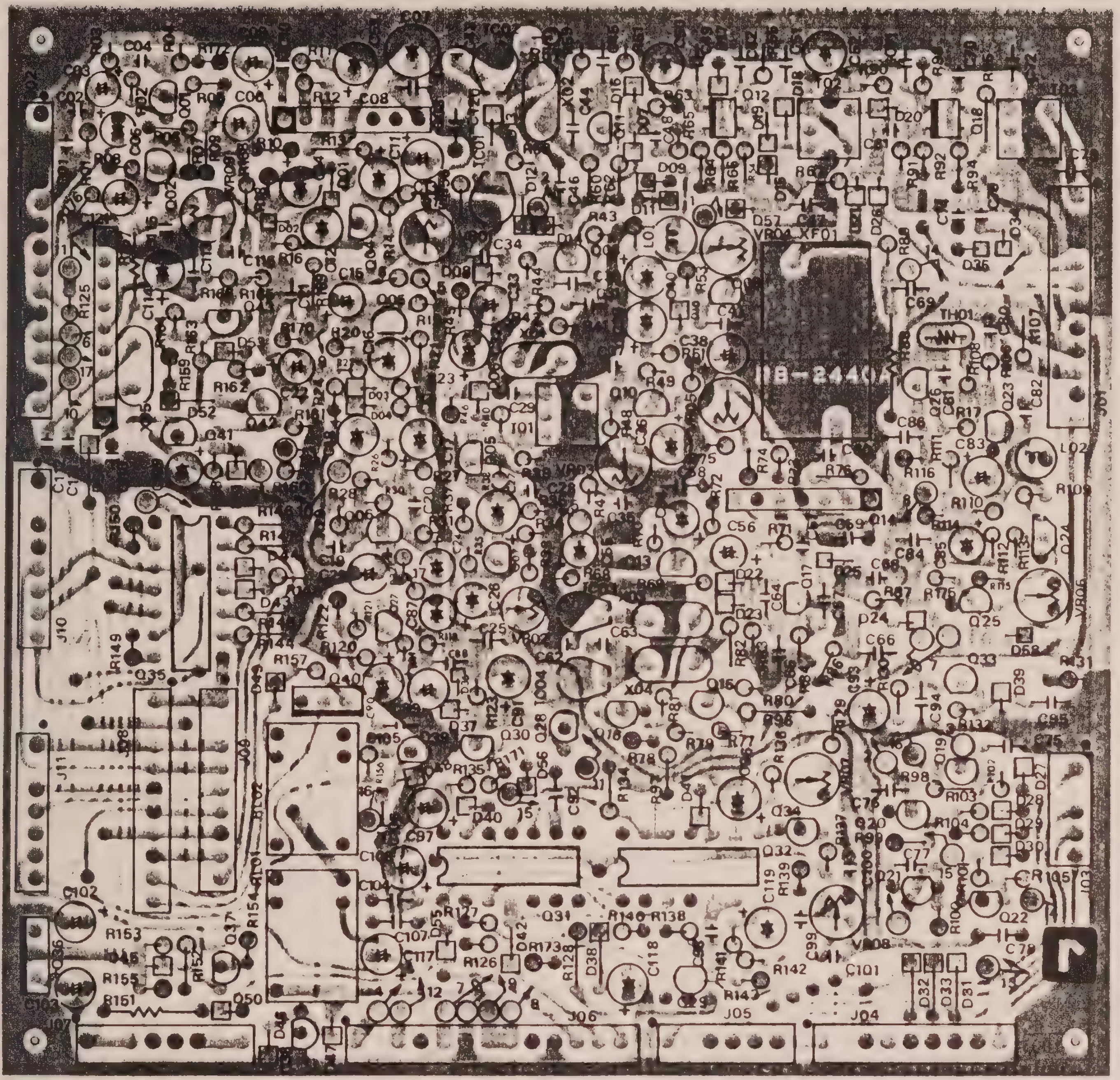


µPC78L05

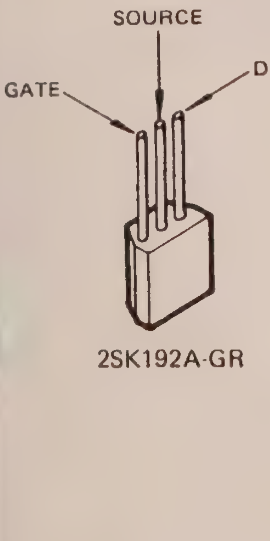


3SK73Y

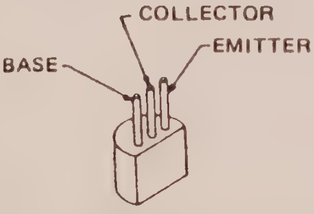
TX UNIT PARTS LAYOUT



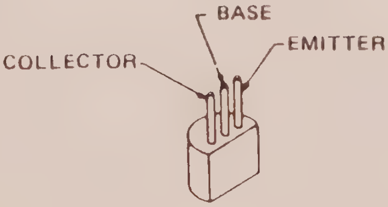
Viewed from solder side



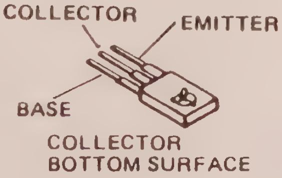
2SK192A-GR



2SA733AQ
2SC460B
2SC945AP
2SC1815BL
2SC1815GR



MPSA13



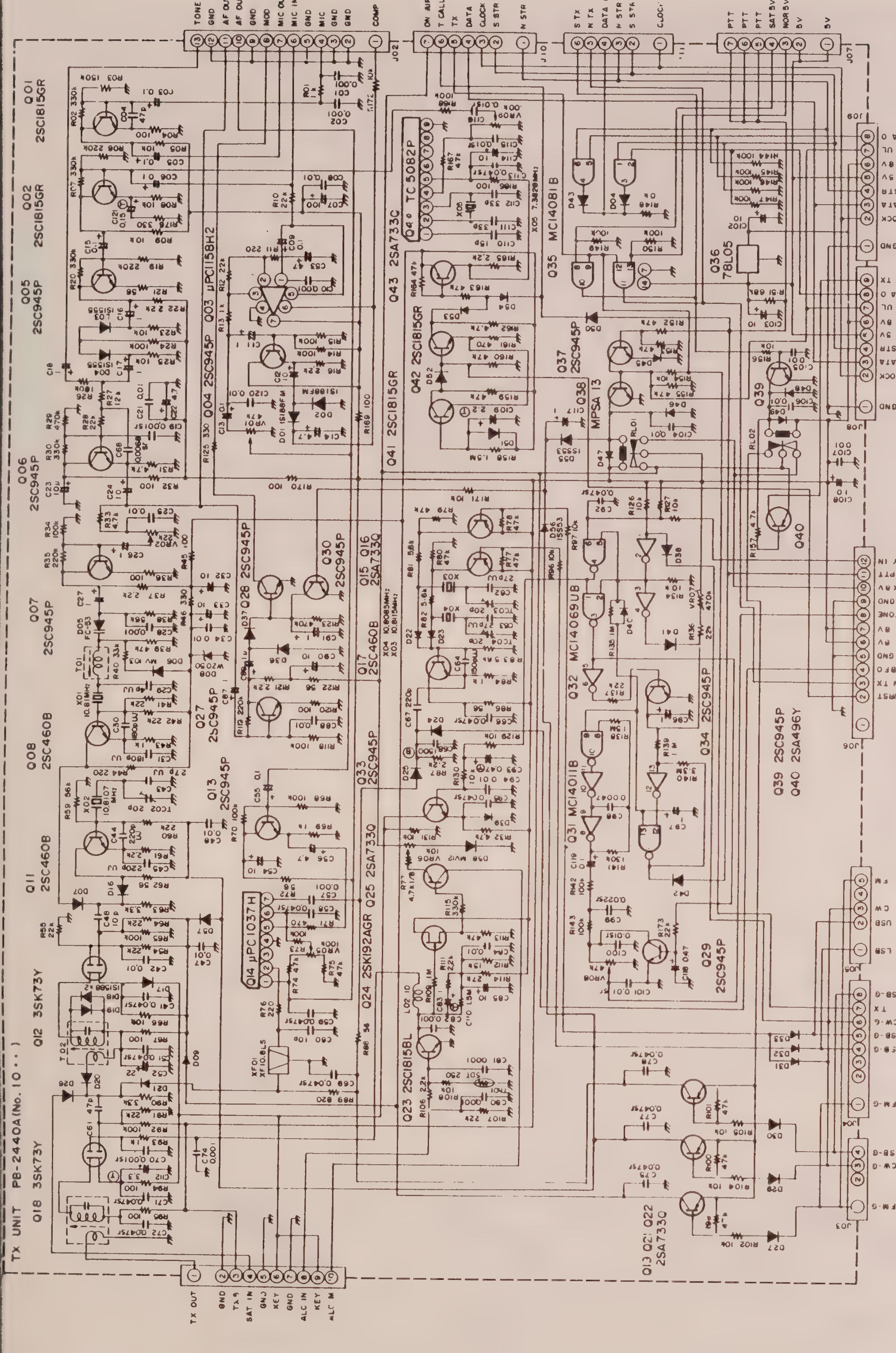
2SA496Y

TX UNIT VOLTAGE CHART (DC VOLTS)

	E(S)	C(D)	B(G1)	(G2)	REMARKS
Q1001	0	2.8	0.7		
Q1002	1.7	5.9	2.2		
Q1004	3.0	7.7	3.6		
Q1005	0.1	3.7	0.7		
Q1006	3.5	7.8	4.0		
Q1007	0.2	3.7	0.8		
Q1008	1.6	4.2	2.2		
Q1011	5.2	7.8	5.2		
Q1012	3.9	7.0	1.3	3.7	
Q1013	2.9	7.9	3.5		
Q1015	8.1	0	8.1		
Q1016	8.1	0	8.1		
Q1017	3.2	7.9	3.6		
Q1018	1.4	7.6	1.4	2.5	
Q1019	8.1	8.0	7.4		
Q1021	8.1	8.0	7.4		
Q1022	8.1	8.0	7.4		
Q1023	0	2.5	0		DRIVE MIN
Q1024	5.0	8.1	2.3		DRIVE MIN
Q1025	5.5	0	4.8		DRIVE MIN
Q1027	0.2	3.9	0.8		
Q1028	0	12.2	0		
Q1029	0	0	0.7		
Q1030	0	0	0.3		
Q1033	0.7	3.3	0		
Q1034	0	7.9	0		
Q1037	0	1.3	0		
Q1038	0	0.7	1.3		
Q1039	0	8.1	0		
Q1040	8.1	8.1	7.3		
Q1041	0.1	0.2	0.6		
Q1042	0.1	7.9	0		
Q1043	7.9	7.8	7.2		

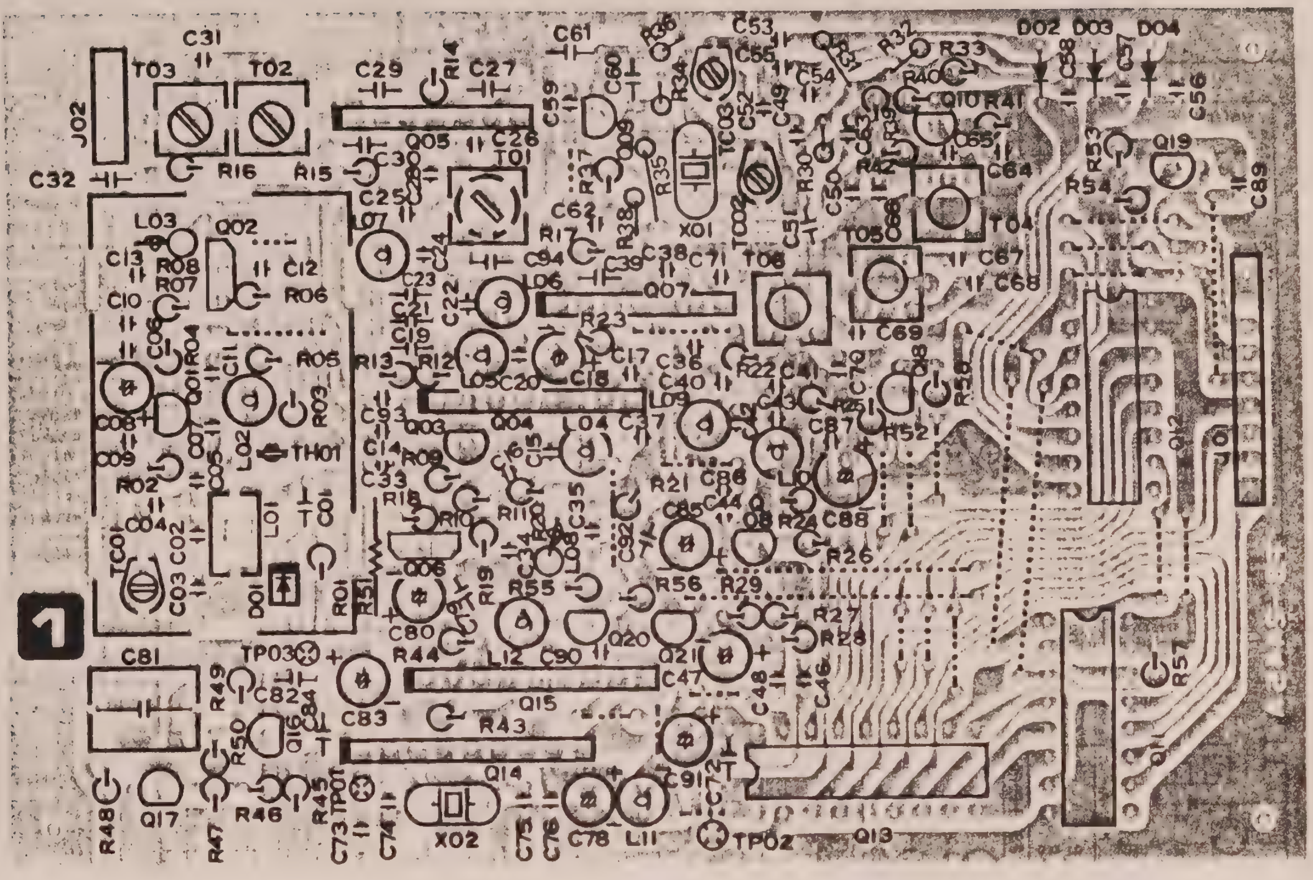
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	REMARKS
Q1003	1.3	0.8	3.5	0	0	0	7.7								
Q1014	8.0	7.0	6.6	0	3.6	3.0	3.5								
Q1031	0	7.9	8.0	0	7.8	8.1	0	3.7	7.2	3.9	8.1	0	7.2	8.1	
Q1032	0.8	7.9	7.9	0	8.0	0	0	3.9	4.2	4.2	3.9	0	7.4	8.1	
Q1035	0	0	0	0	0	0	0	0	4.8	0	4.8	4.8	4.9	4.9	
Q1036	4.9	0	8.1												
Q1044	2.2	3.0	3.2	3.7	7.5	3.7	3.7	3.7	0						

TX UNIT SCHEMATIC DIAGRAM

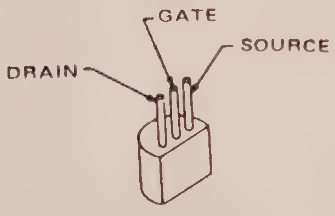


RESISTOR VALUES ARE IN Ω, 1/4W. CAPACITOR VALUES ARE IN μF, 50WV AND INDUCTOR VALUES ARE IN HENRIES, UNLESS OTHERWISE NOTED
ELECTROLYTIC CAPACITOR VALUES ARE IN μF, 16WV UNLESS OTHERWISE NOTED
DIODES ARE TYPE 1SS53 UNLESS OTHERWISE NOTED

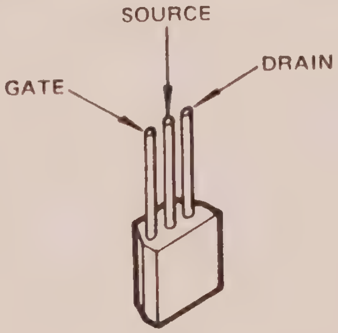
VFO UNIT PARTS LAYOUT



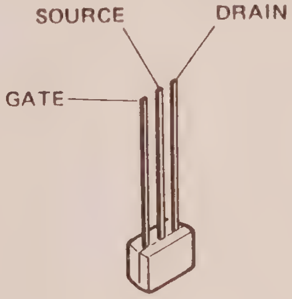
Viewed from component side



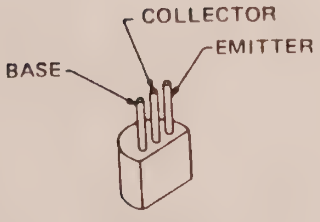
2SK30A-Y



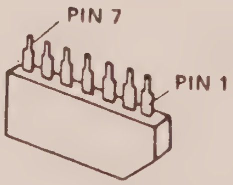
2SK192A-GR



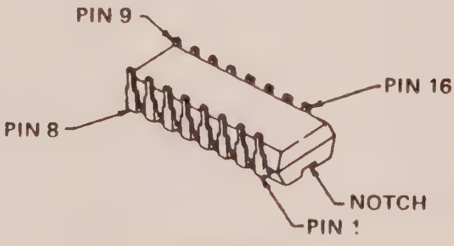
2SK241Y



2SA733Q
2SC535B
2SC945AP



µPC1037H



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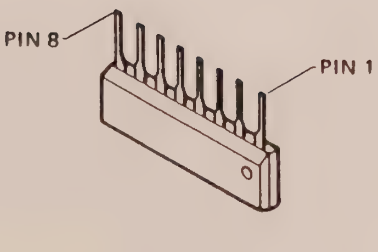
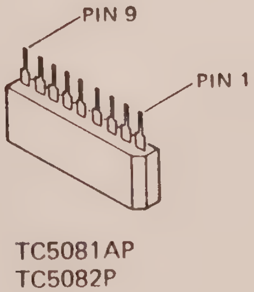
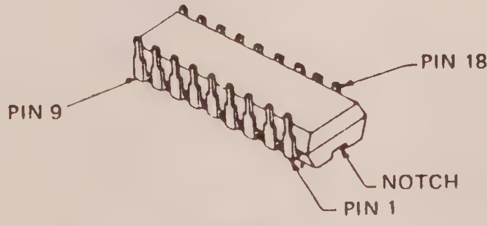


HD10551P

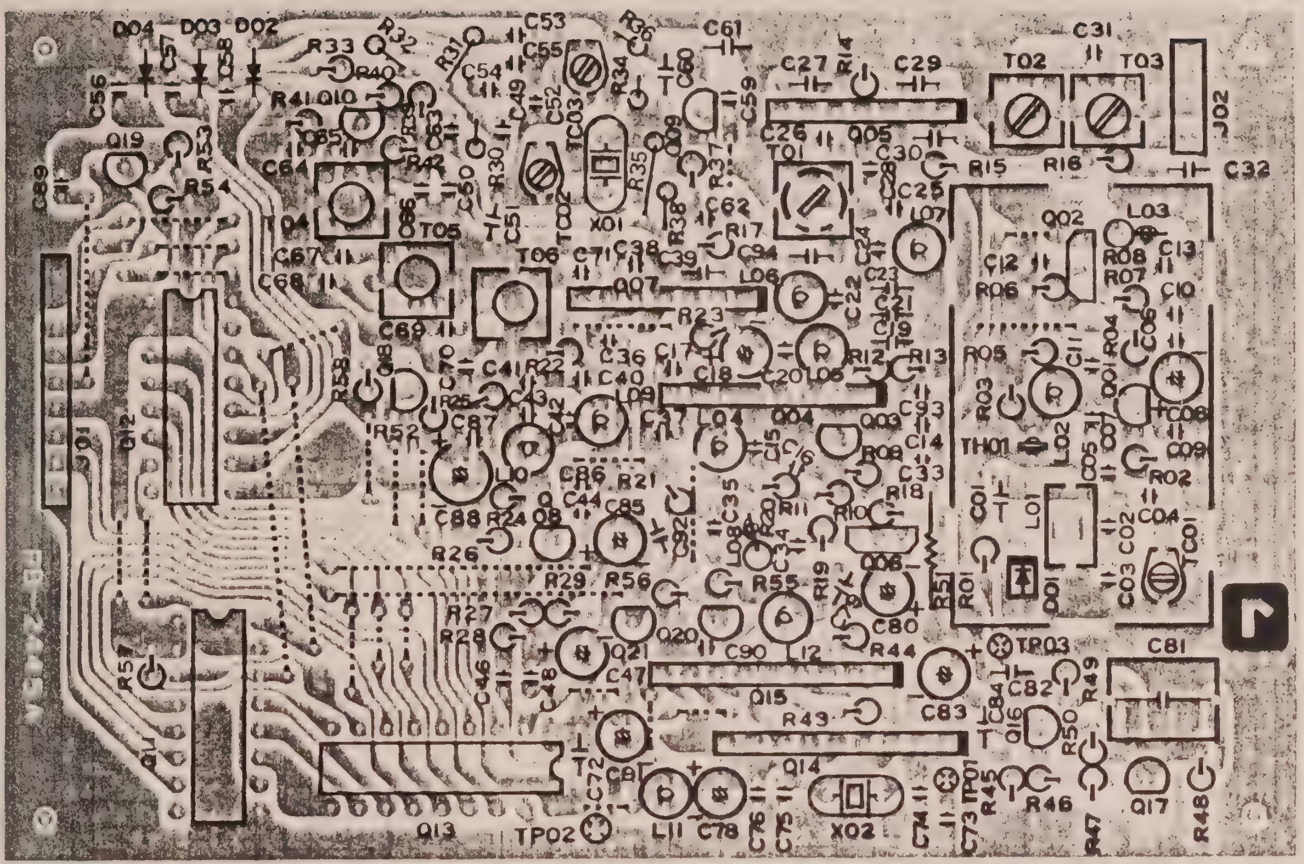


TC5081AP
TC5082P



TC9122P

VFO UNIT PARTS LAYOUT



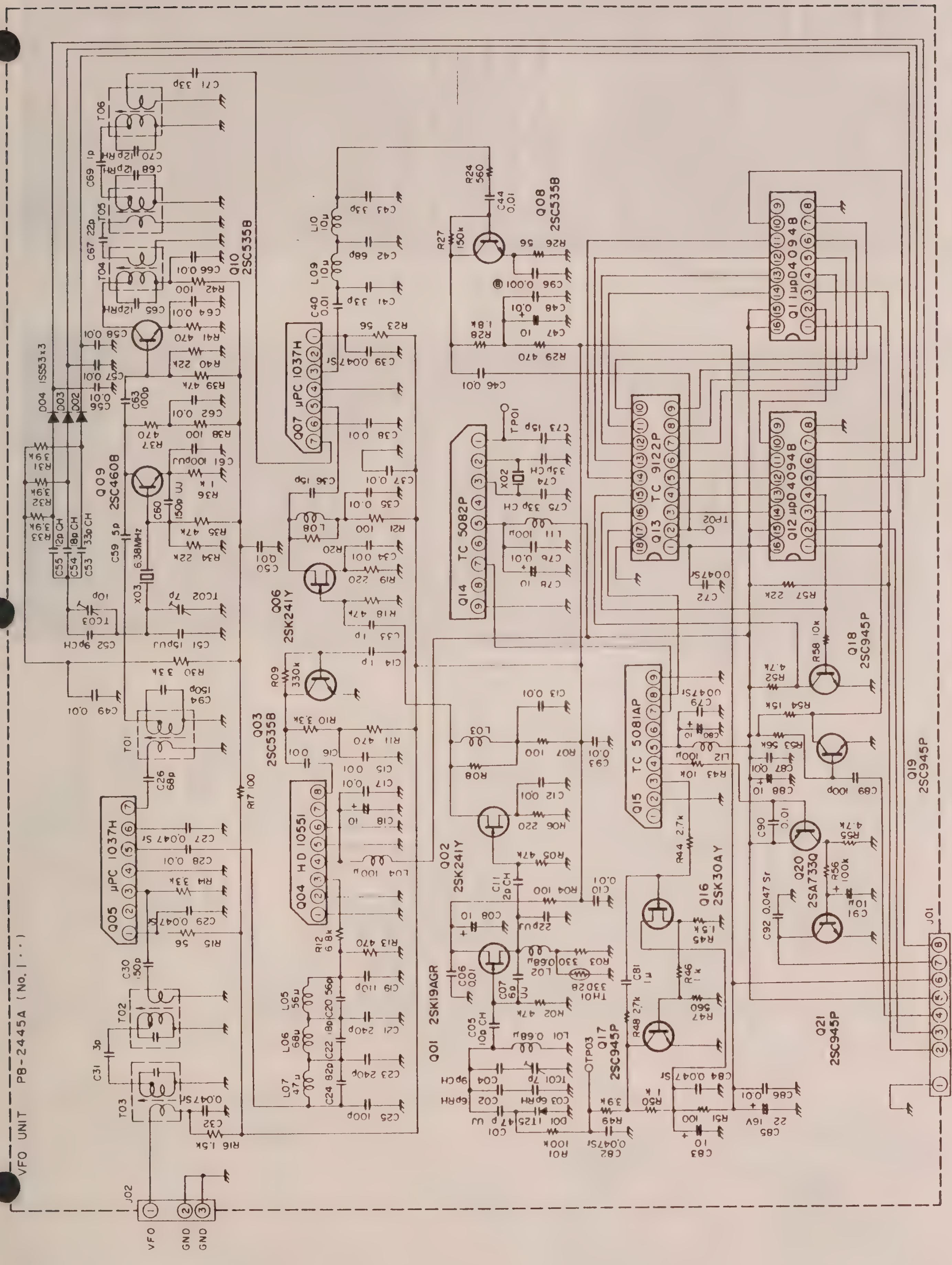
Viewed from solder side

VFO UNIT VOLTAGE CHART (DC VOLTS)

	E(S)	C(D)	B(G1)	REMARKS
Q101	1.0	7.7	0	
Q102	0.5	7.8	0	
Q103	0	4.8	0.7	
Q106	0.5	7.9	0	
Q108	0.1	3.9	0.8	
Q109	2.0	6.2	1.9	
Q110	1.7	7.0	1.7	
Q116	1.8	7.5	1.7	
Q117	0	3.8	0.6	
Q118	0	4.3	0	
Q119	0	0	0.6	
Q120	4.9	0	4.9	
Q121	0	0.3	0	

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	REMARKS
Q104	0	0	2.6	4.9	0	0	4.9	2.7									
Q105	7.0	6.2	5.5	0	3.1	3.1	3.1										
Q107	7.2	6.3	5.8	0	3.2	3.2	3.2										
Q111	0	4.9	4.9	4.9	0	0	0	0	0	0	0	0	0	0	4.9	4.9	
Q112	0	0	4.9	0	0.2	0	0.2	0	0	4.9	0	4.9	0	4.9	4.9	4.9	

VFO UNIT SCHEMATIC DIAGRAM

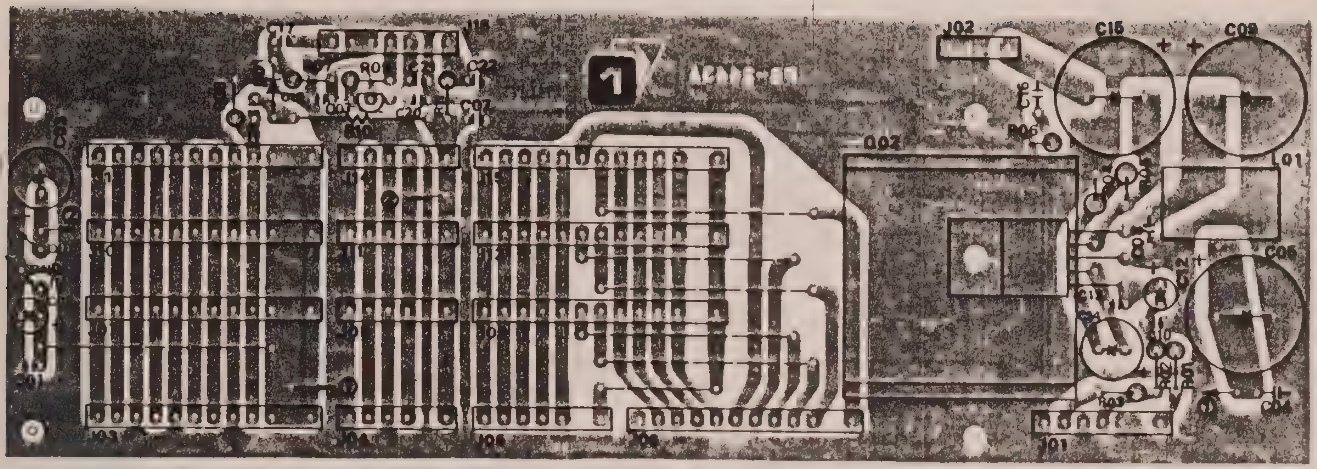


RESISTOR VALUES ARE IN Ω, 1/4W. CAPACITOR VALUES ARE IN μF, 50wv AND INDUCTOR VALUES ARE IN HENRIES, UNLESS OTHERWISE NOTED

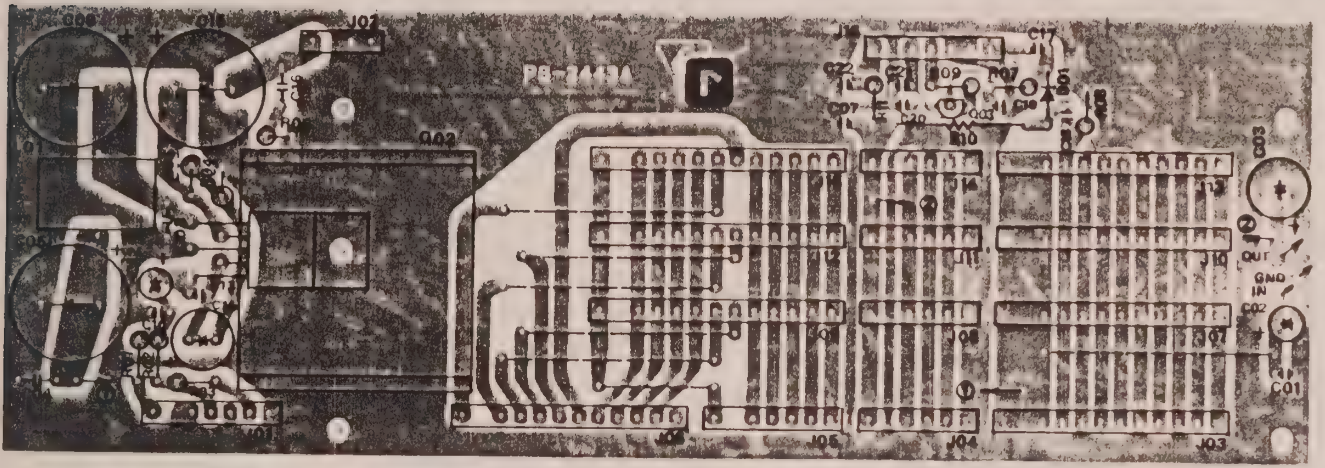
ELECTROLYTIC CAPACITOR VALUES ARE IN μF, 16wv UNLESS OTHERWISE NOTED

DIODES ARE TYPE 1SS53 UNLESS OTHERWISE NOTED

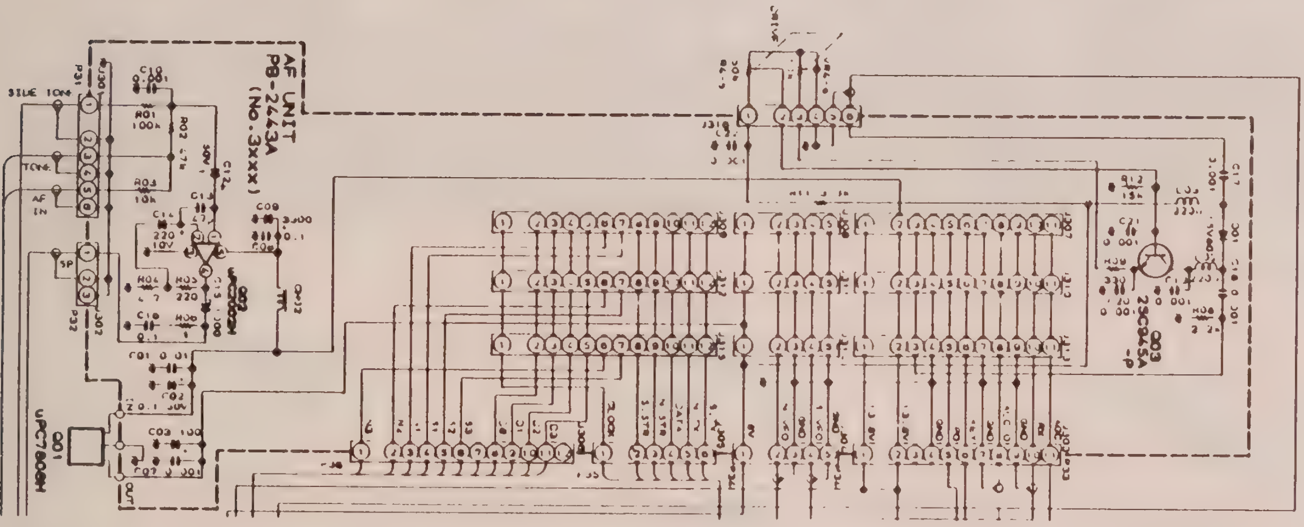
AF UNIT



Viewed from component side



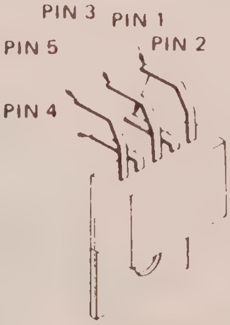
Viewed from solder side



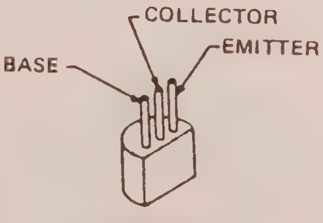
AF UNIT VOLTAGE CHART (DC VOLTS)

	E(S)	C(D)	B(G1)	REMARKS
Q303	0	7.8	0	

	1	2	3	4	5
Q302	0.7	0	0	0	13.7

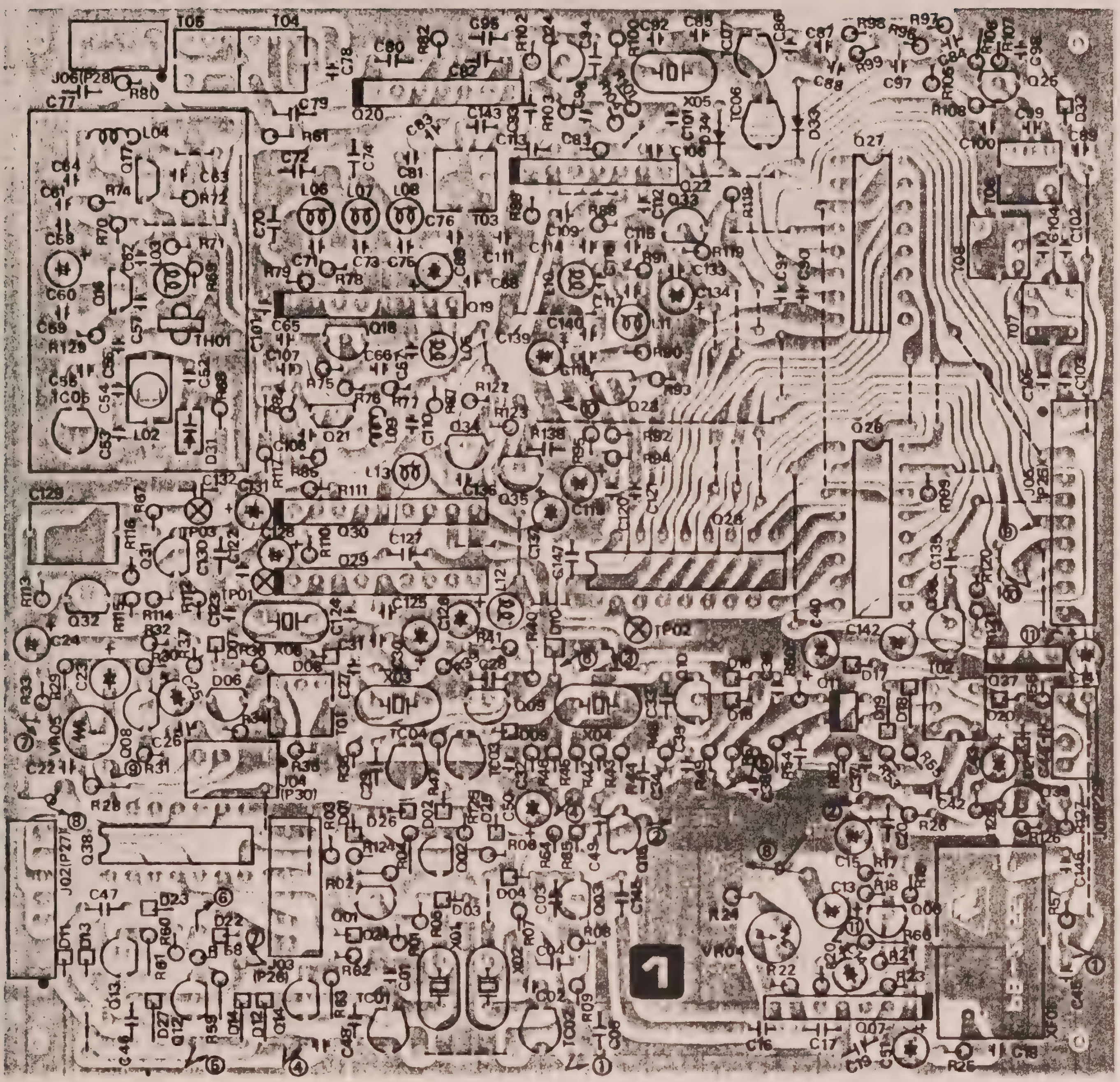


µPC2002H

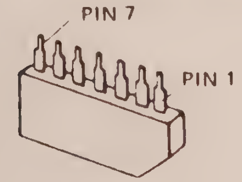


2SC945AP

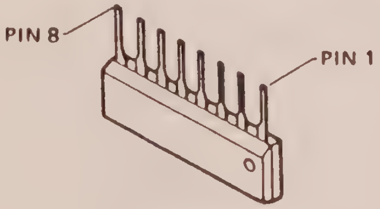
SAT UNIT PARTS LAYOUT



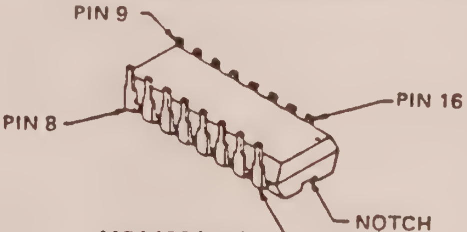
Viewed from component side



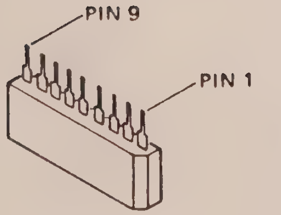
µPC1037H



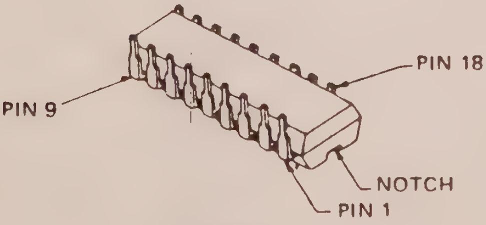
HD10551P



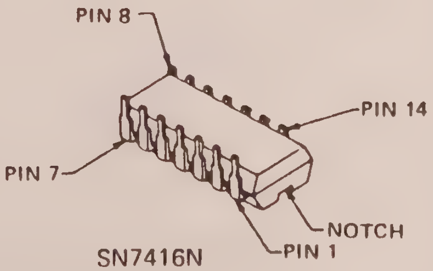
MC14094BCP



TC5081AP
TC5082P

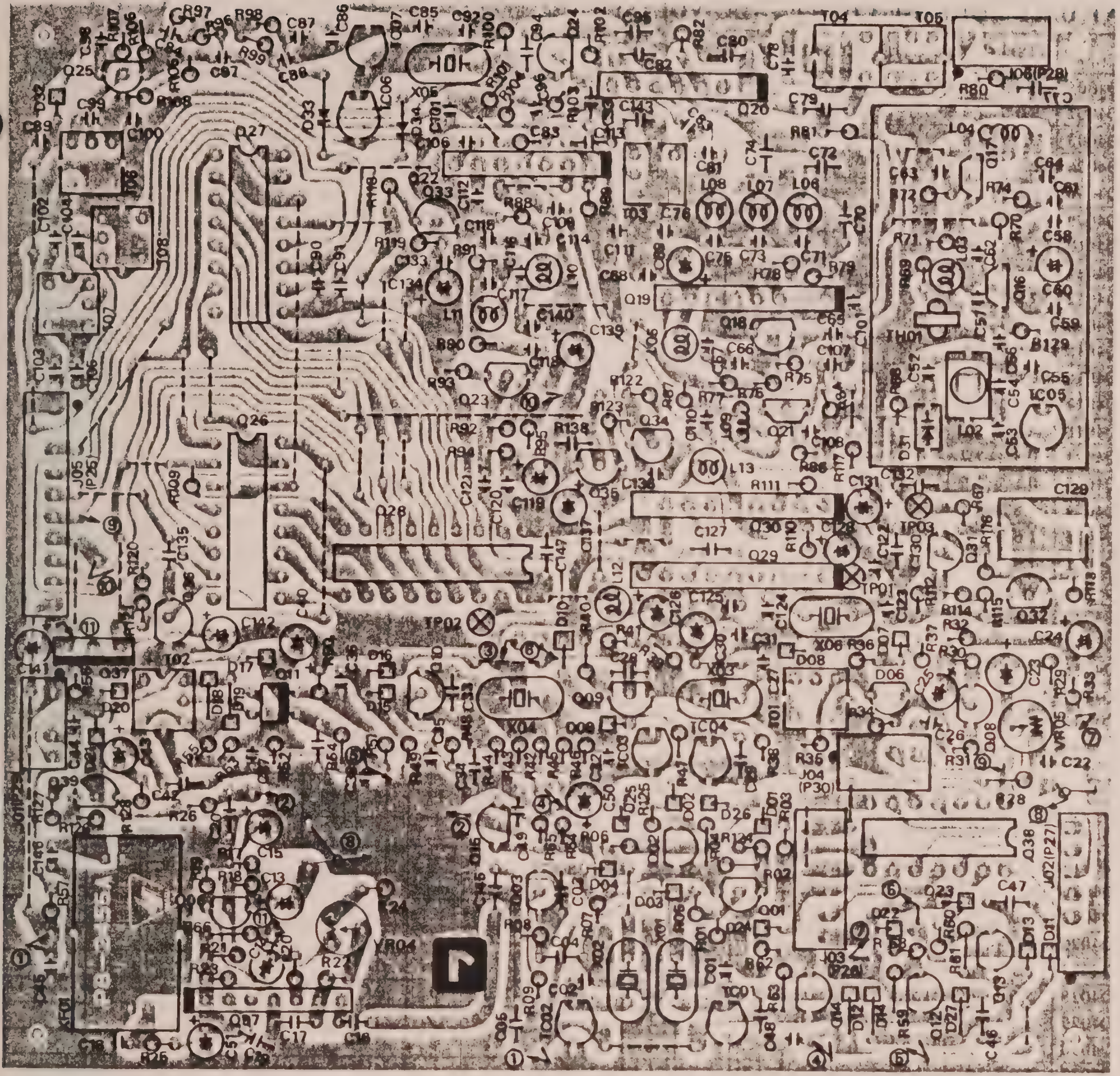


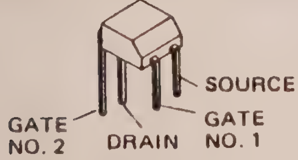
TC9122P



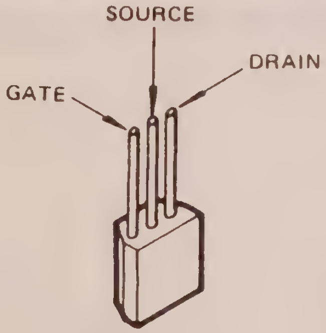
SN7416N

SAT UNIT PARTS LAYOUT



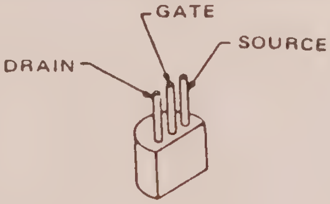


3SK73Y

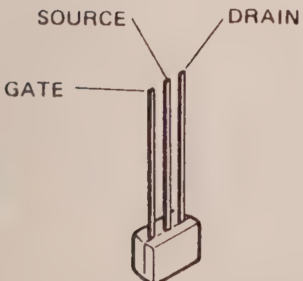


2SK192A-GR

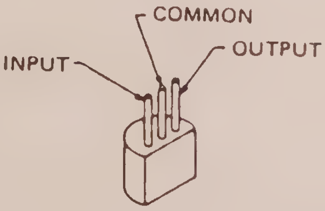
Viewed from solder side



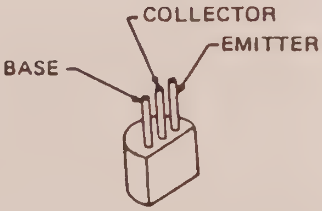
2SK30A-Y



2SK241Y



µPC78L05



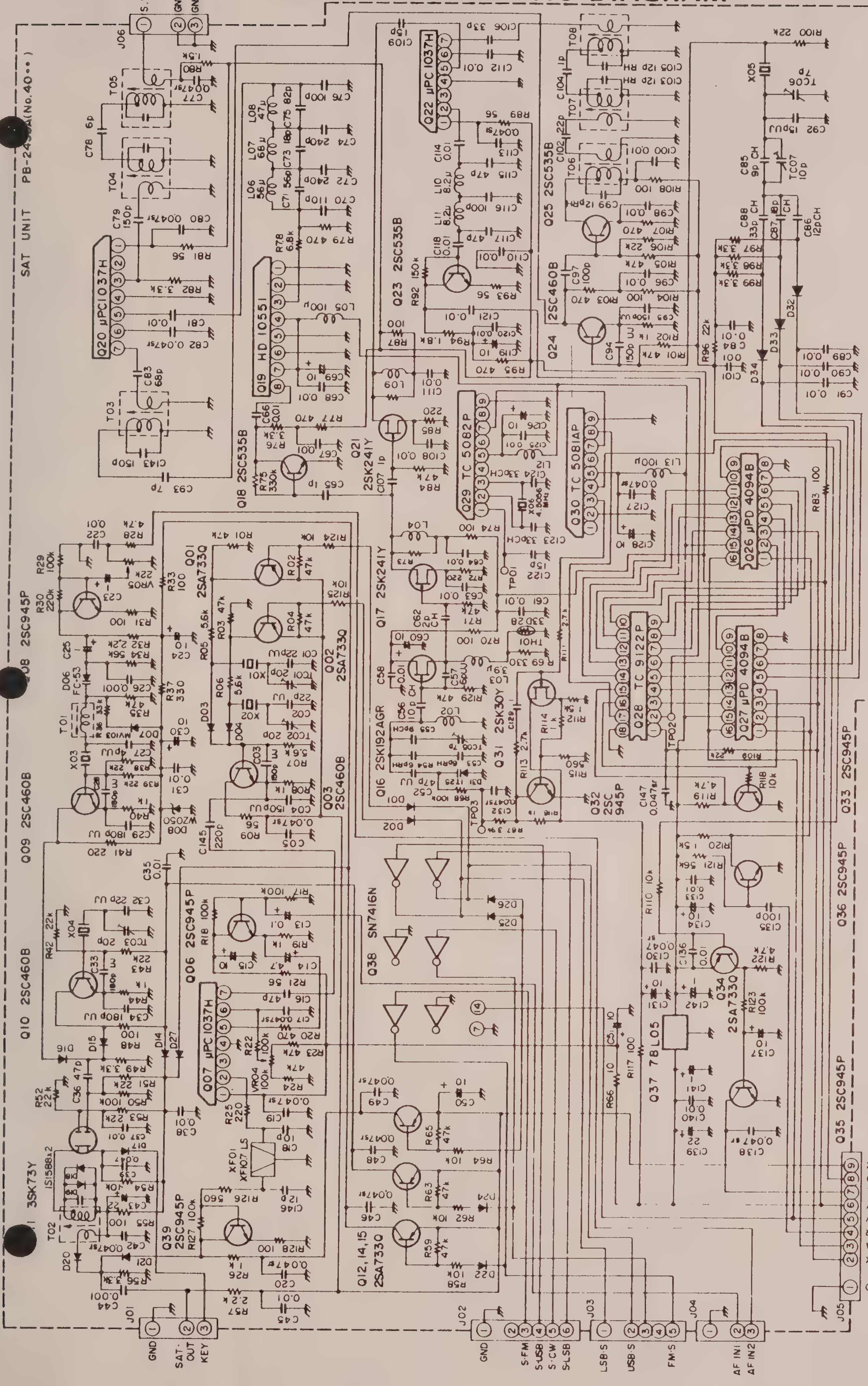
2SA733AQ
2SC460B
2SC535B
2SC945AP

SAT UNIT VOLTAGE CHART (DC VOLTS)

	E(S)	C(D)	B(G1)	(G2)	REMARKS
Q4001	8.0	0	7.5		
Q4002	8.0	7.9	7.3		
Q4003	3.7	7.8	3.5		
Q4006	2.7	7.6	3.1		
Q4008	0.2	3.5	0.8		
Q4009	1.6	4.1	2.2		
Q4010	3.7	7.3	3.5		
Q4011	1.6	6.7	1.2	3.5V	
Q4012	7.9	7.8	7.3		
Q4014	8.0	7.9	7.3		
Q4015	8.0	7.9	7.3		
Q4016	0.8	7.6	0		
Q4017	0.4	7.8	0		
Q4018	0	4.2	0.7		
Q4021	0.5	7.7	0		
Q4023	0.1	3.9	0.8		
Q4024	1.8	6.2	2.1		
Q4025	1.6	7.0	1.8		
Q4031	1.8	7.4	1.8		
Q4032	0	3.7	0.6		
Q4033	0.6	5.0	0		
Q4034	5.0	0	4.9		
Q4035	0	1.3	0.1		
Q4036	0	0.1	0.7		
Q4039	0	0.2	0.2		

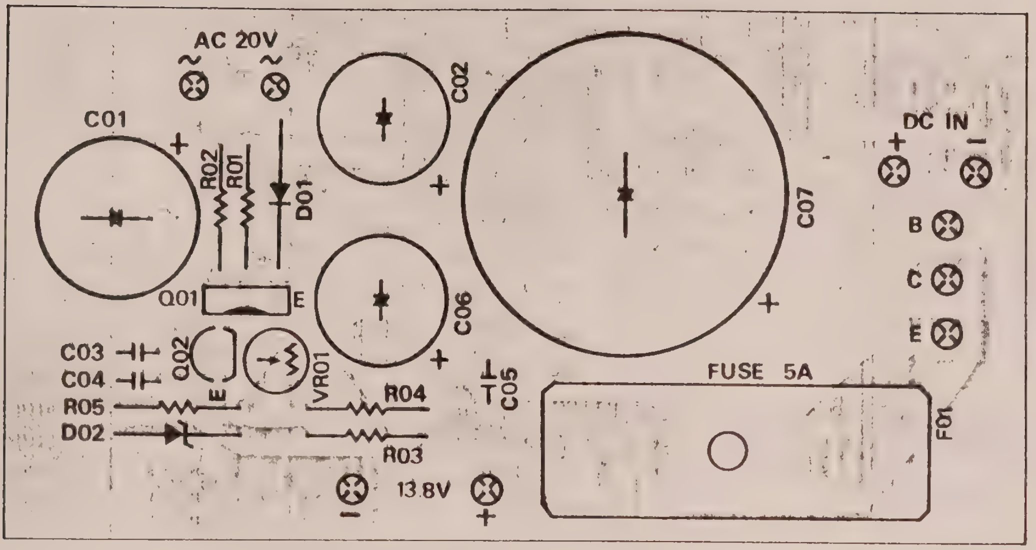
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	REMARKS
Q4007	7.8	0.7	6.4	0	3.5	3.4	3.4												
Q4019	0	0	2.2	4.9	0	0	4.9	2.8											
Q4020	7.0	6.1	5.4	0	3.1	3.1	3.1												
Q4022	7.0	6.2	5.7	0	3.2	3.2	3.2												
Q4026	0.1	4.9	4.9	4.9	4.9	0	0	0	0	0	0	0	0	0	5.0	4.9			
Q4027	0.1	0	4.9	0	0	4.9	0	0	0	4.9	0	0	0	0	5.0	4.9			
Q4028	5.0	2.0	0	0	0	0	4.9	4.9	0	0	0	0	0	0	4.4	0	0	0	
Q4029	1.3	2.3	2.4	2.5	5.0	2.5	2.5	2.4	0										
Q4030	5.0	0	1.8	5.0	5.0	–	2.5	0	0										
Q4037	5.0	0	7.9																
Q4038	3.9	0.1	1.8	0.1	0.1	7.5	0	12.7	0.1	12.6	0.1	1.2	0	4.9					

SAT UNIT SCHEMATIC DIAGRAM

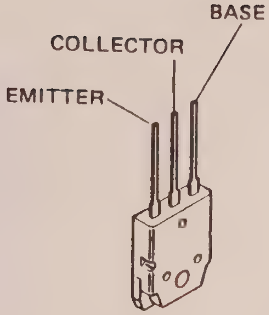


RESISTOR VALUES ARE IN Ω, 1/4W.
CAPACITOR VALUES ARE IN µF, 50wv AND
INDUCTOR VALUES ARE IN HENRIES,
UNLESS OTHERWISE NOTED
ELECTROLYTIC CAPACITOR VALUES ARE
IN µF, 16wv UNLESS OTHERWISE NOTED
DIODES ARE TYPE 1SS53 UNLESS OTHERWISE NOTED

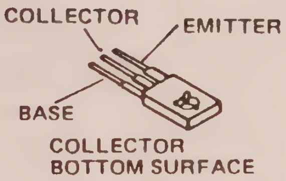
AVR UNIT



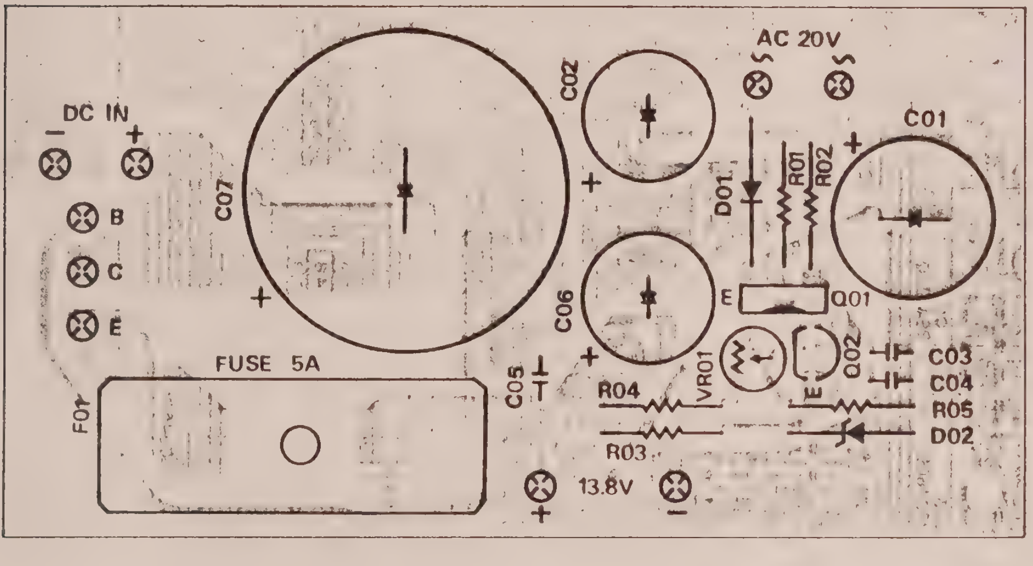
Viewed from component side



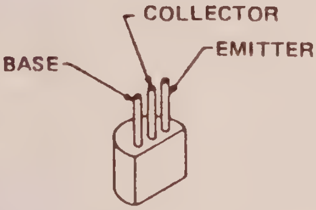
2SD717Y



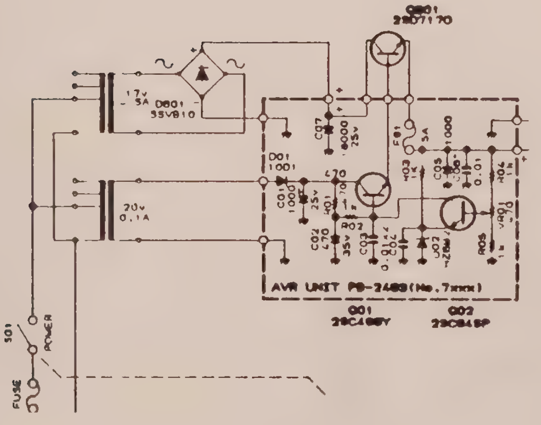
2SC496Y



Viewed from solder side



2SC945AP



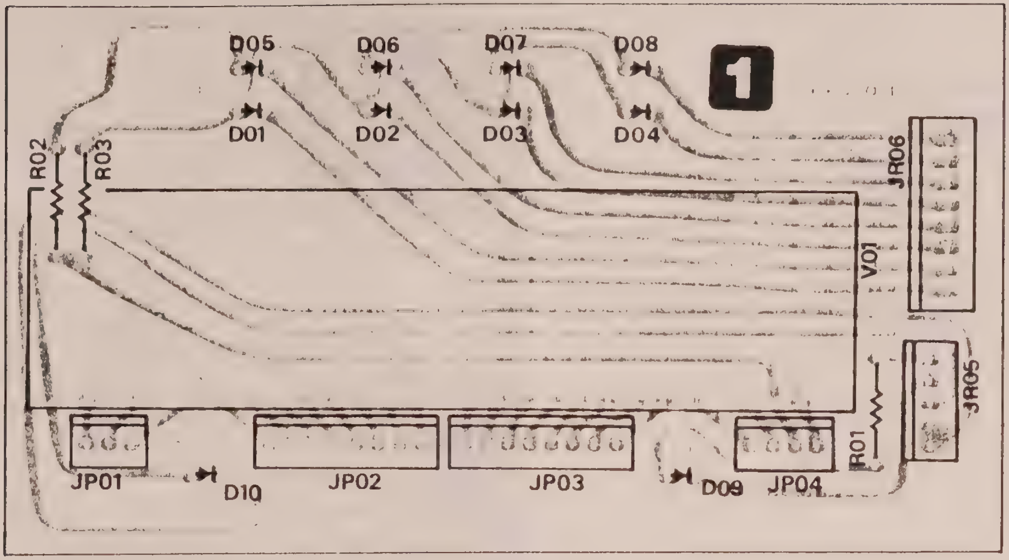
10W PS UNIT VOLTAGE CHART (DC VOLTS)

	E(S)	C(D)	B(G1)	REMARKS
Q601	13.7	20.5	14.4	

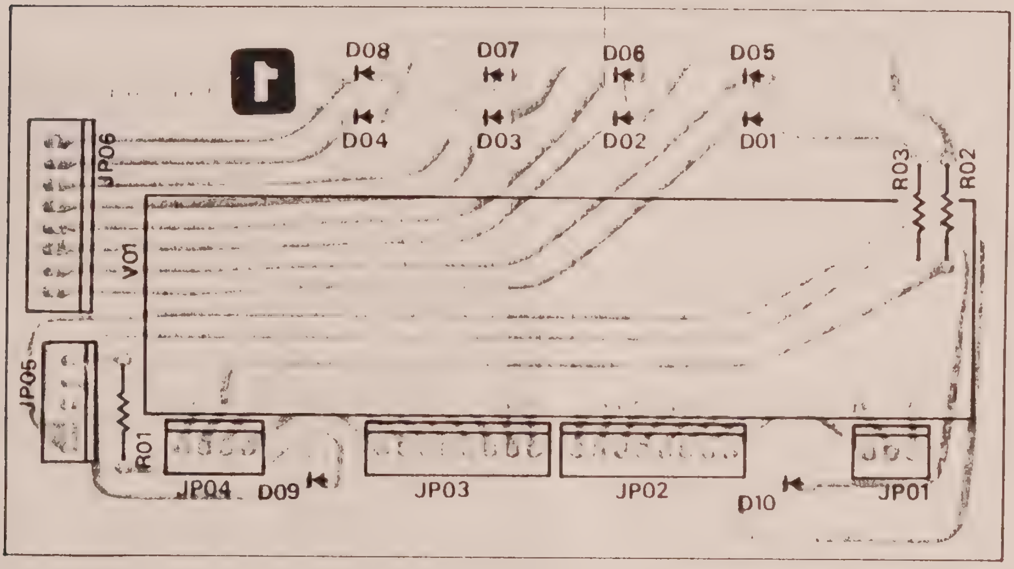
AVR UNIT VOLTAGE CHART (DC VOLTS)

	E(S)	C(D)	B(G1)	REMARKS
Q701	14.4	24.0	15.0	
Q702	5.8	15.0	6.5	

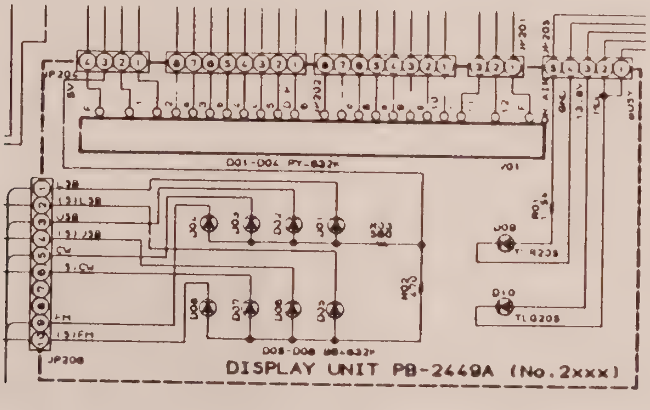
DISPLAY UNIT



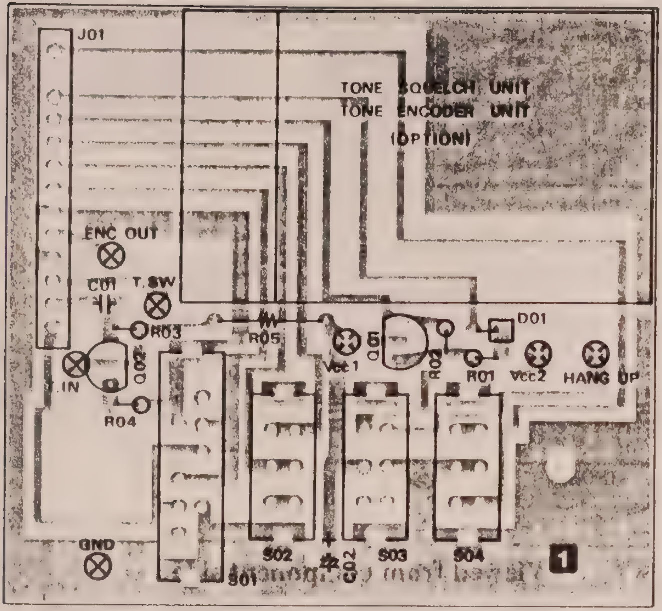
Viewed from component side



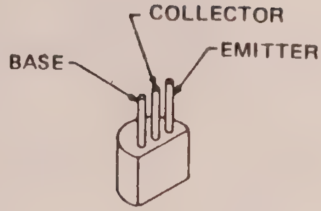
Viewed from solder side



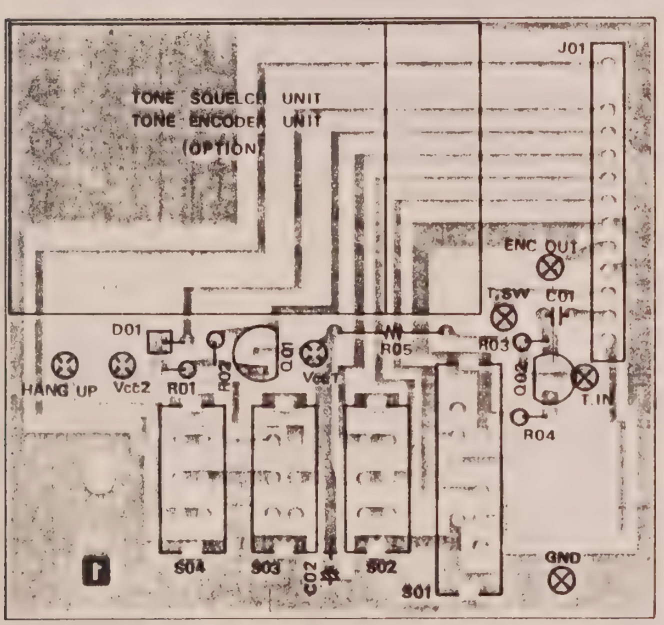
SCAN/SQL SW UNIT



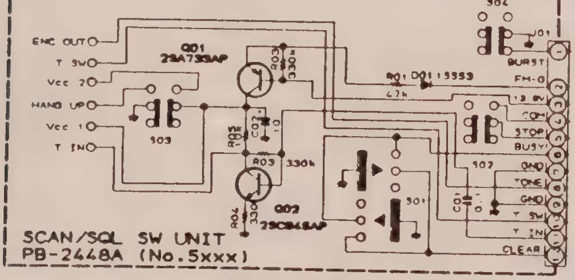
Viewed from component side



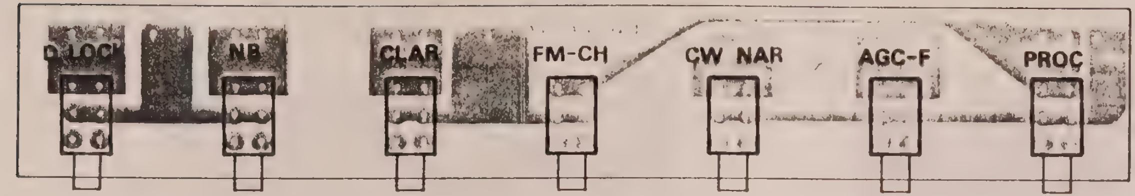
2SA733AP
2SC945AP

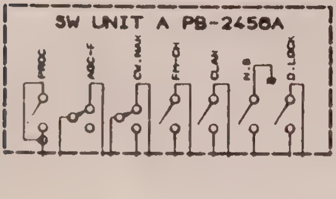


Viewed from solder side

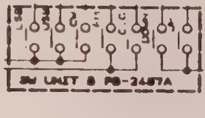


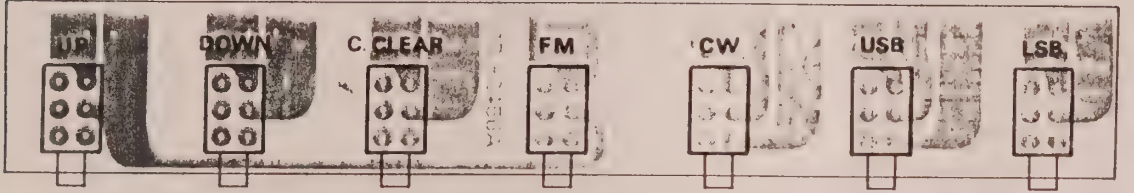
SW UNITS A—H

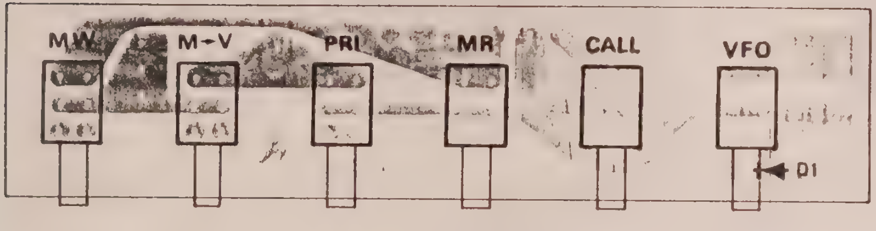


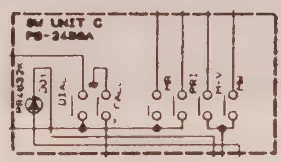


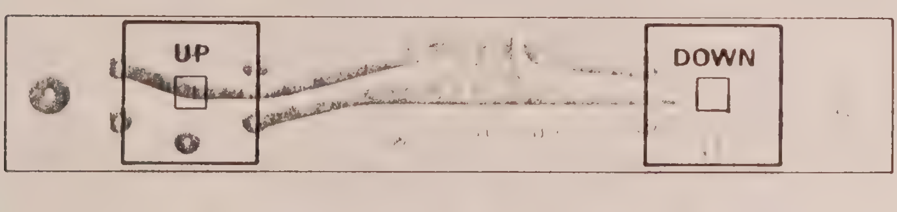
All views from
solder side

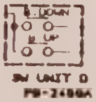


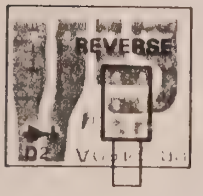


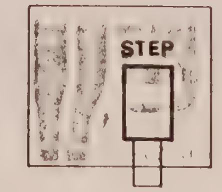


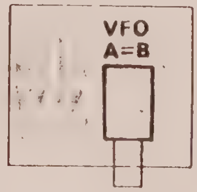


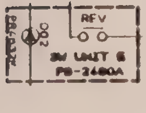


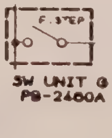


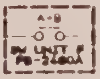


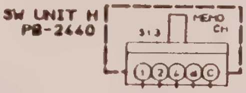






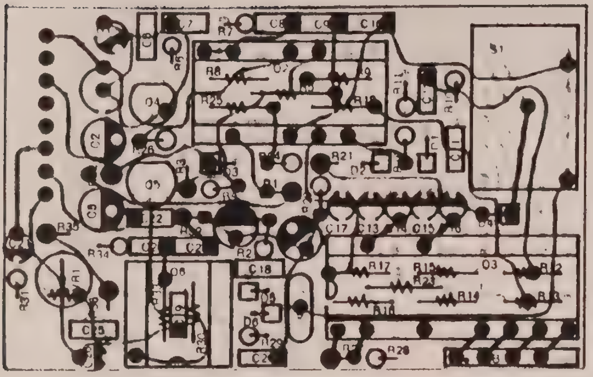




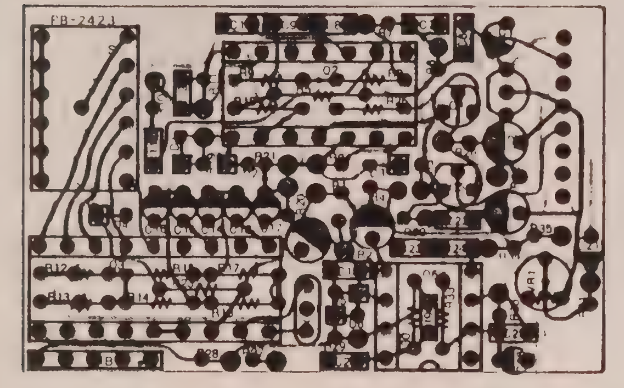


FTS-32R AND FTE-36 TONE SQL UNITS

FTS-32R

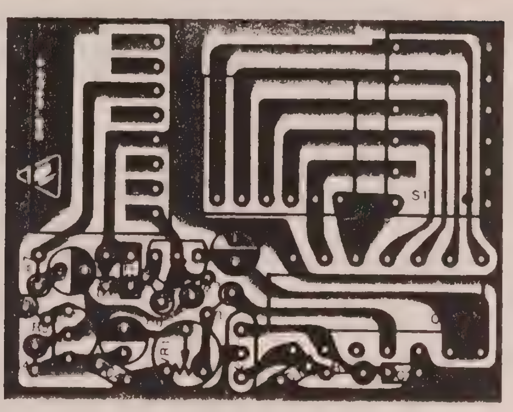


Viewed from component side



Viewed from solder side

FTE-36



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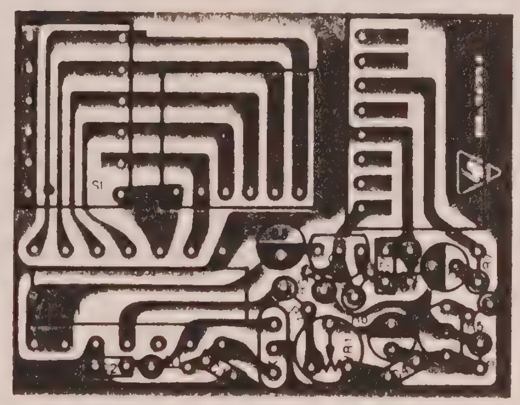

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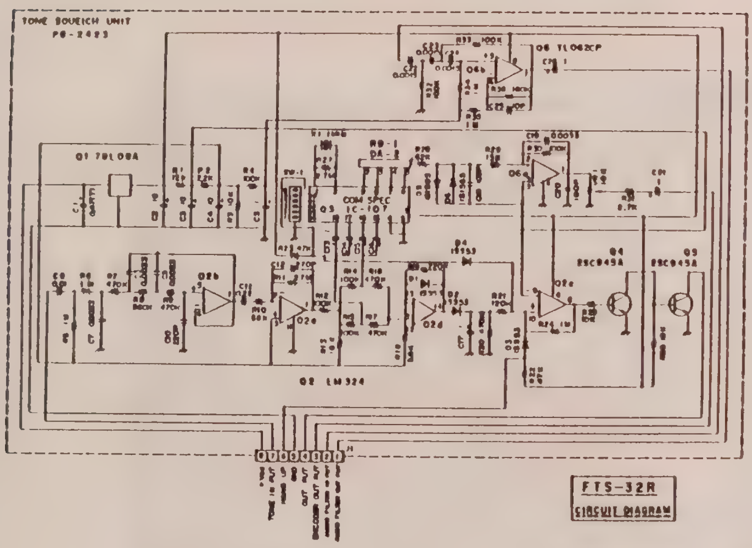
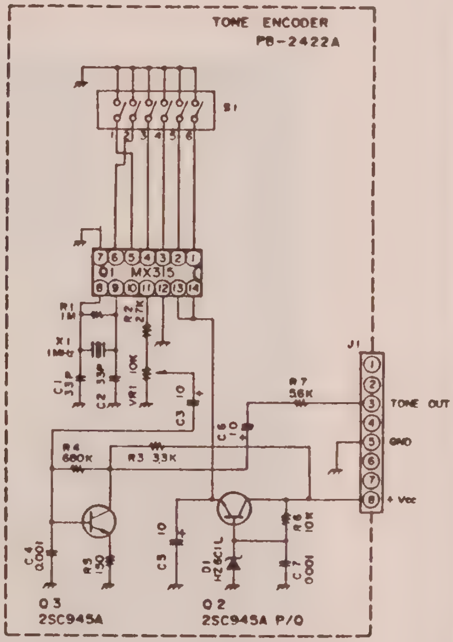
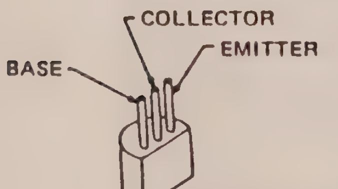


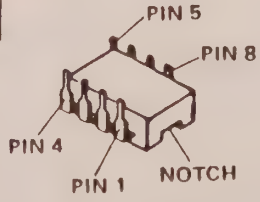
FTS-32R
CIRCUIT DIAGRAM



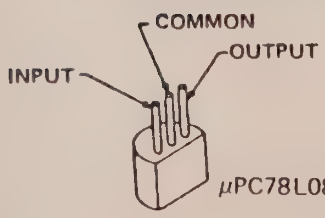
FTE-36
CIRCUIT DIAGRAM



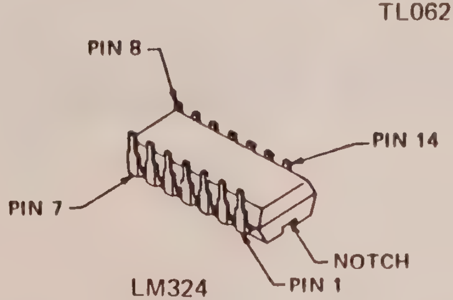
2SC945AP
2SC945AQ



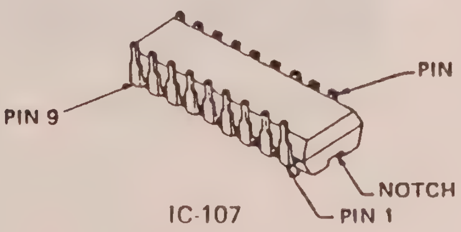
TL062CP



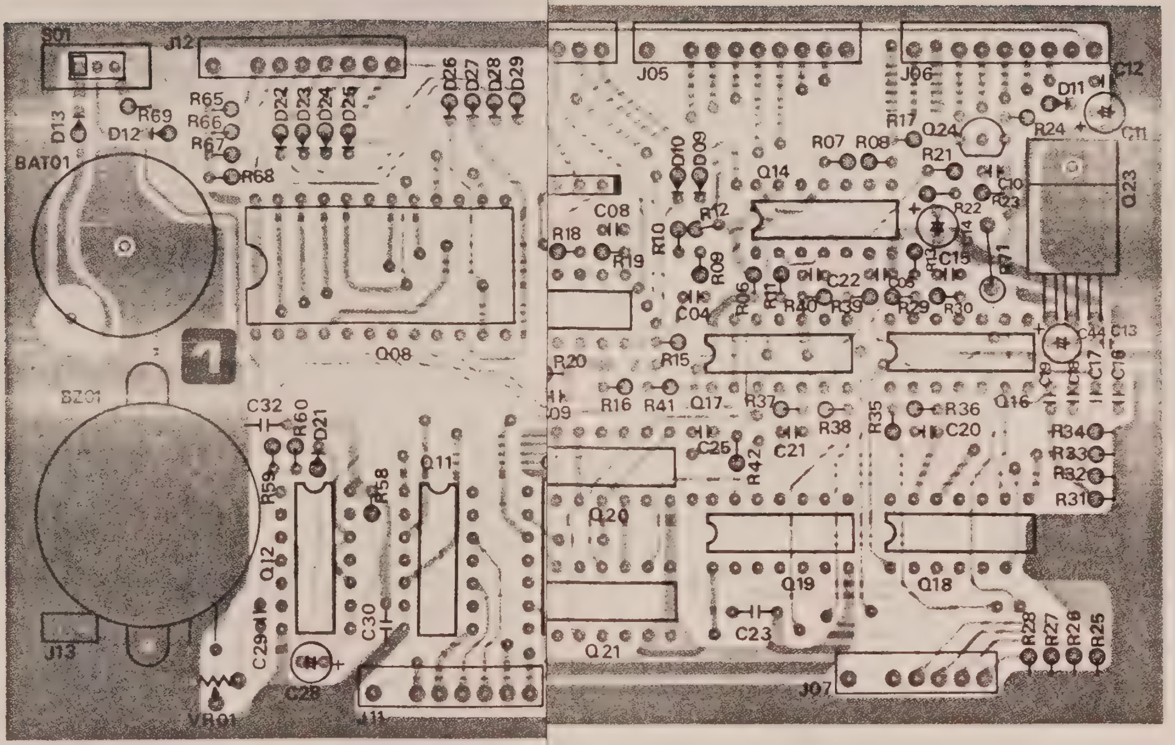
μPC78L08



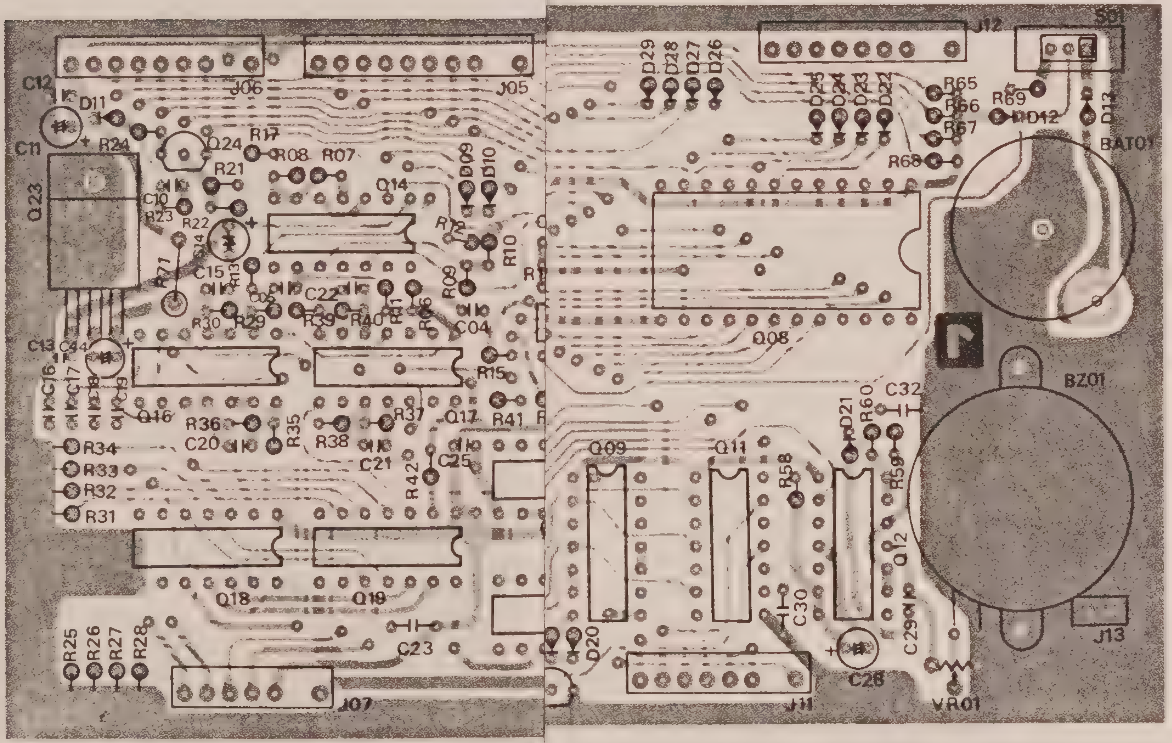
LM324
MX315



IC-107

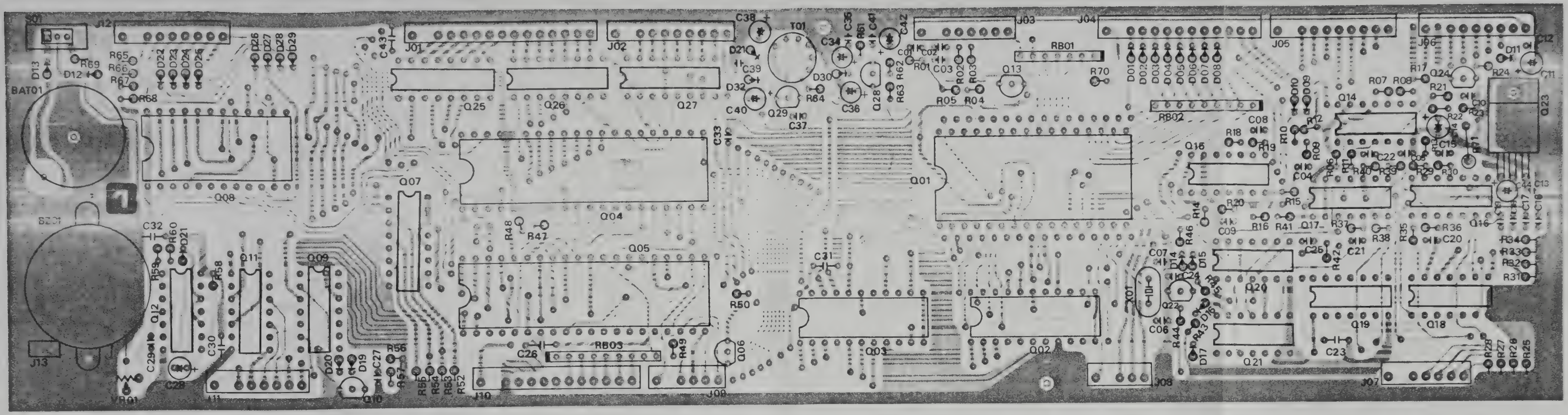


Viewed from component side

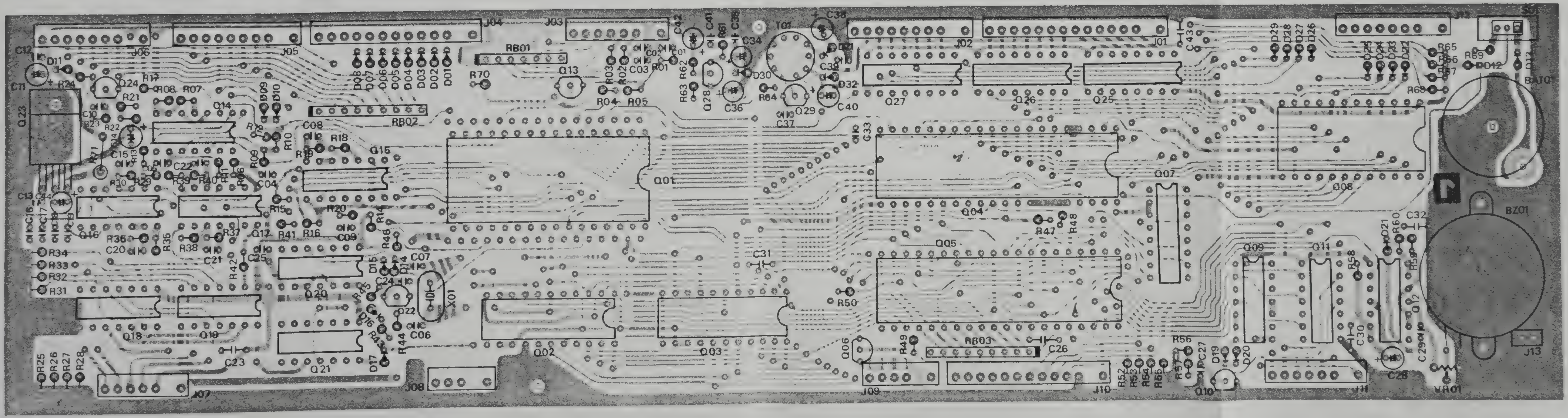


Viewed from solder side

CONTROL UNIT PARTS LAYOUT



Viewed from component side

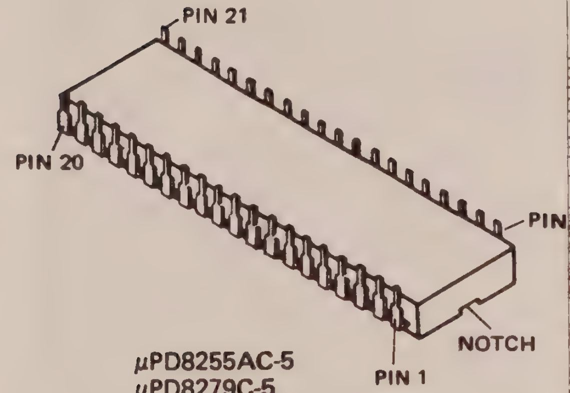


Viewed from solder side

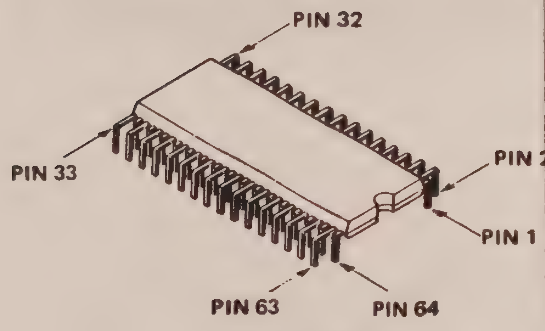
CNTL UNIT VOLTAGE CHART (DC VOLTS)

	E(S)	C(D)	B(G1)	REMARKS
Q3006	0	3.4	0	
Q3010	0	7.6	0	
Q3013	0	0	0.6	
Q3022	0	0	0.7	
Q3024	0	0	0.6	
Q3028	9.9	13.5	10.6	
Q3029	0	9.9	0	

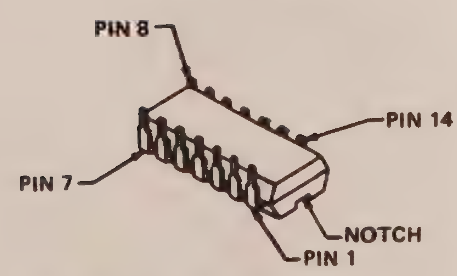
	1	2	3
Q3023	13.8	0	5.0



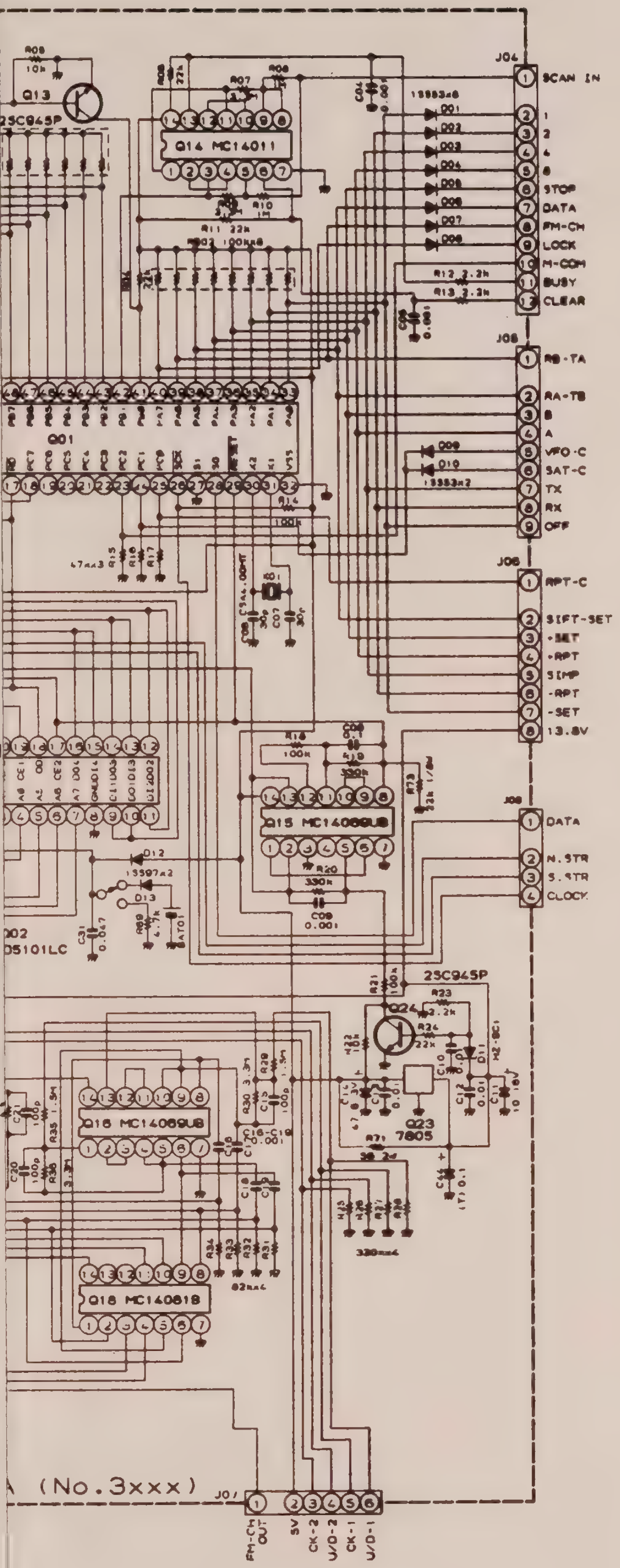
μPD8255AC-5
μPD8279C-5

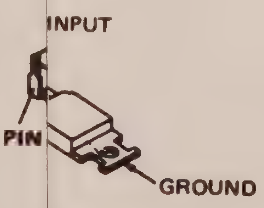


μPD7801G-090

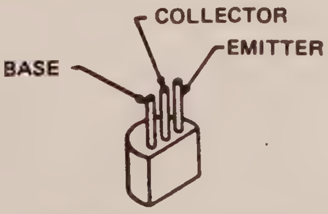


MC14001B	MC14072B
MC14011B	MC14081B
MC14013B	SN7416N
MC14069UB	μPA80C





05H



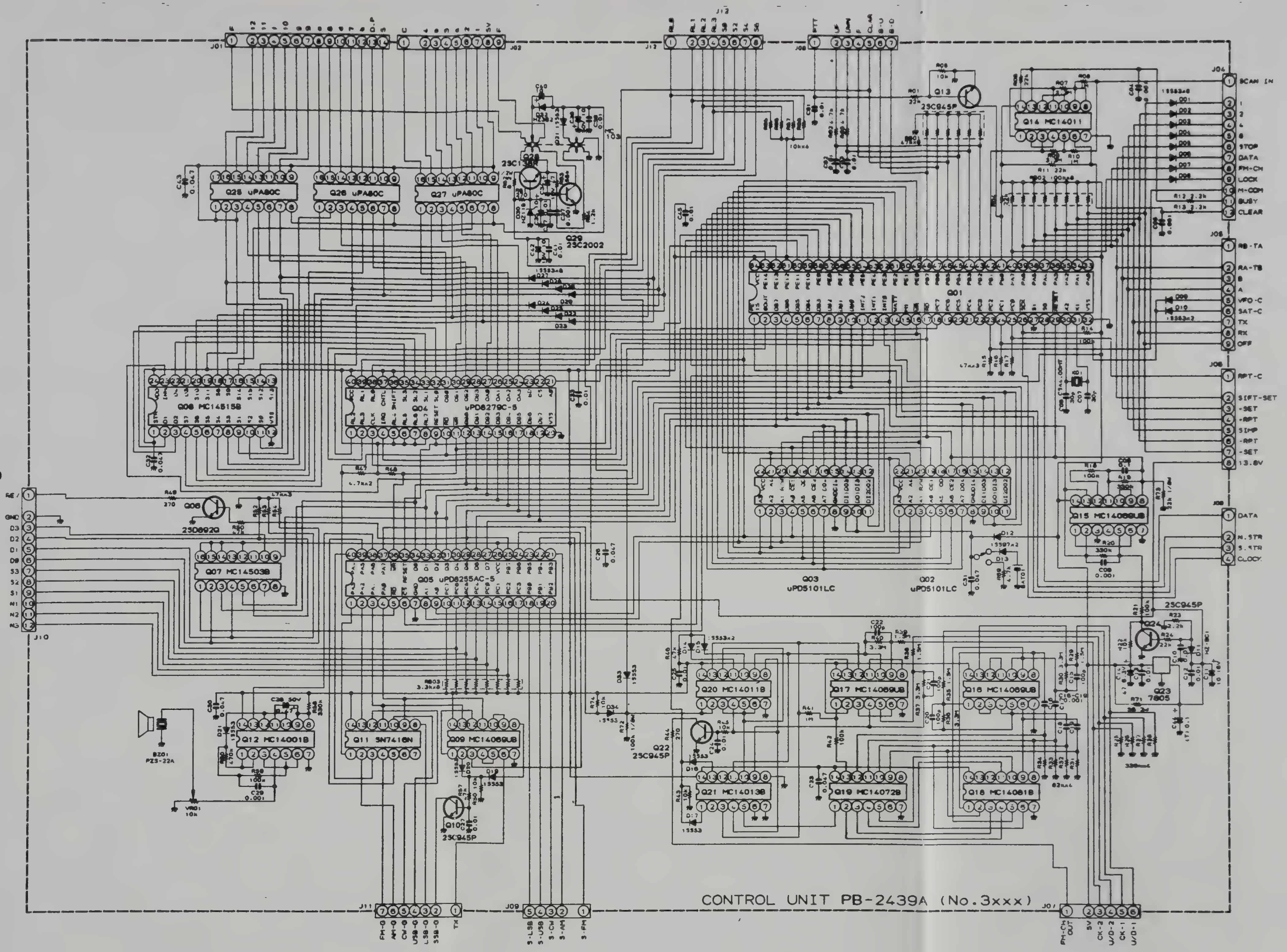
2SC945AP 2SC2002L

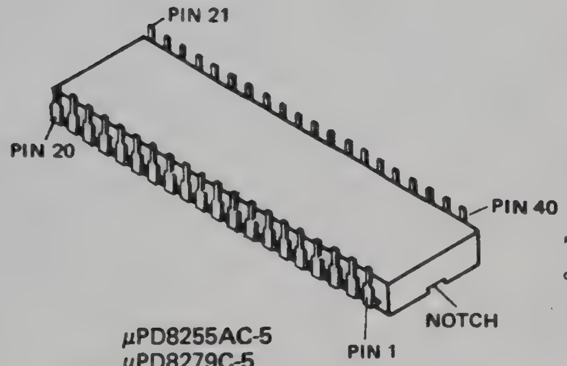
CONTROL UNIT SCHEMATIC DIAGRAM

CNTL UNIT VOLTAGE CHART (DC VOLTS)

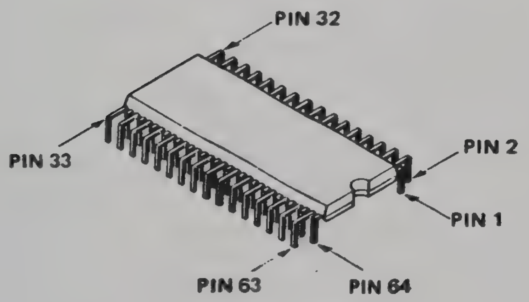
	E(S)	C(D)	B(G1)	REMARKS
Q3006	0	3.4	0	
Q3010	0	7.6	0	
Q3013	0	0	0.6	
Q3022	0	0	0.7	
Q3024	0	0	0.6	
Q3028	9.9	13.5	10.6	
Q3029	0	9.9	0	

	1	2	3
Q3023	13.8	0	5.0

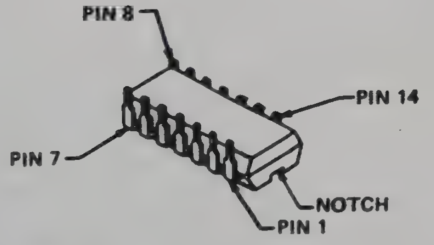




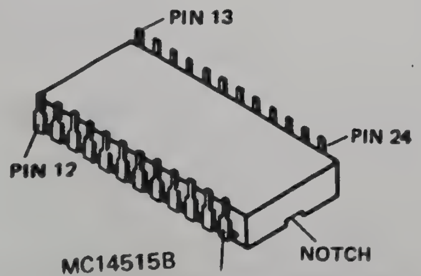
μPD8255AC-5
μPD8279C-5



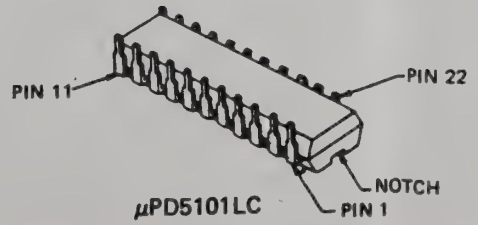
μPD7801G-090



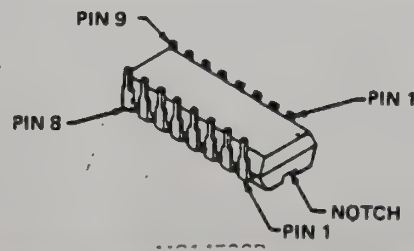
MC14001B MC14072B
MC14011B MC14081B
MC14013B SN7416N
MC14069UB μPA80C

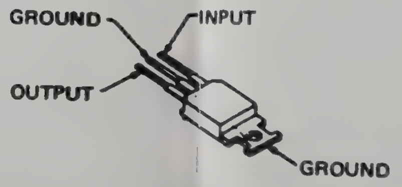


MC14515B

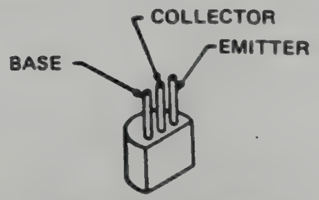


μPD5101LC

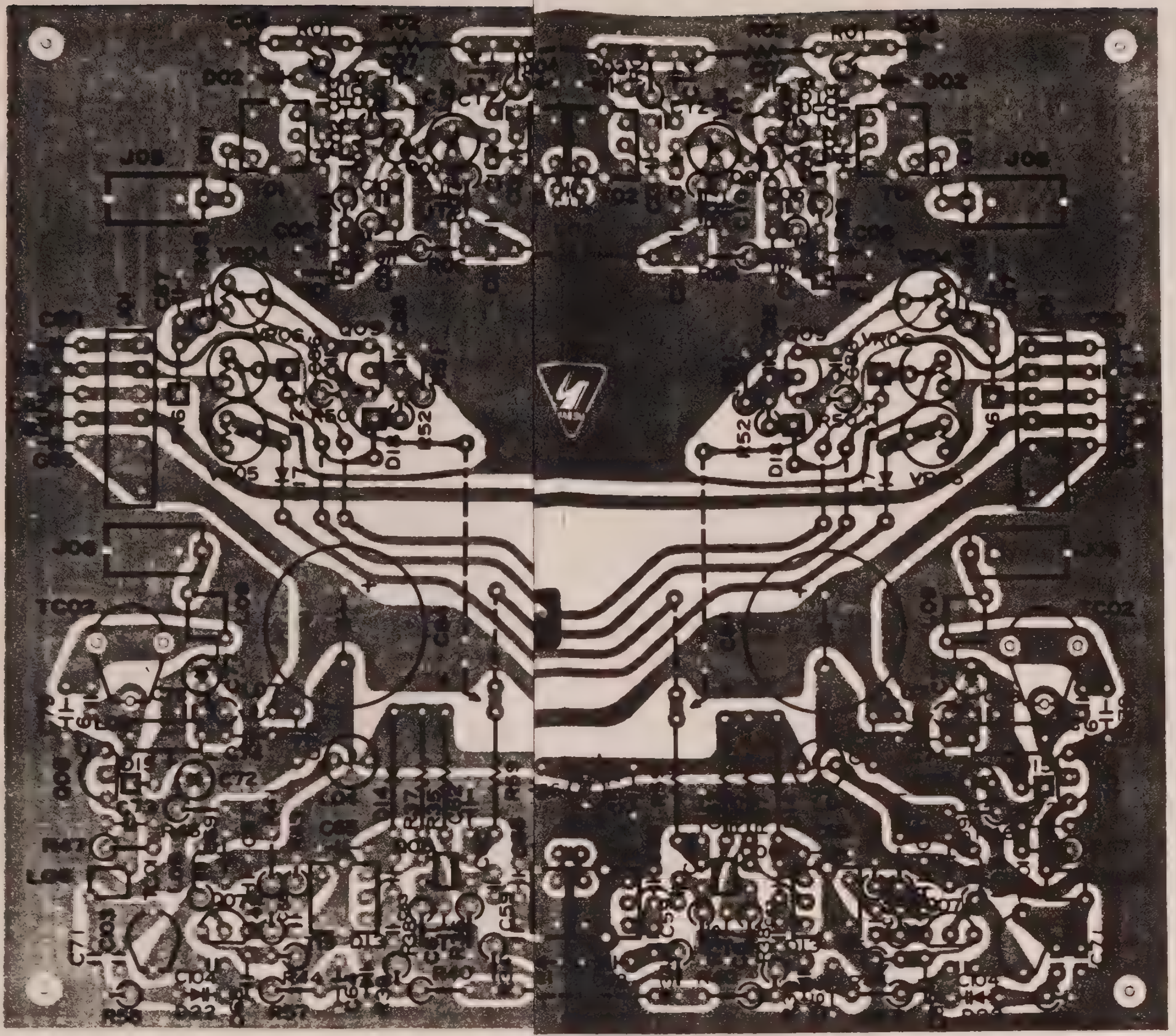




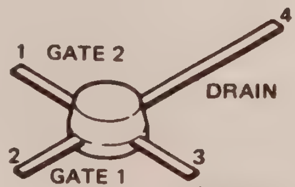
μPC7805H



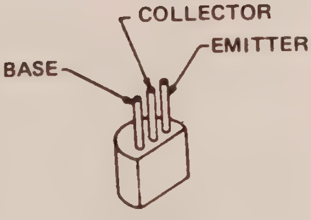
2SC945AP 2SC2002L



Viewed from solder side



3SK74L



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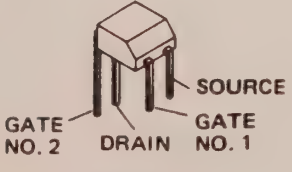
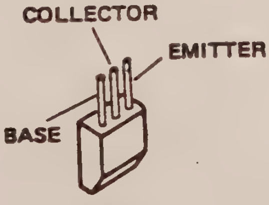
2SC460B

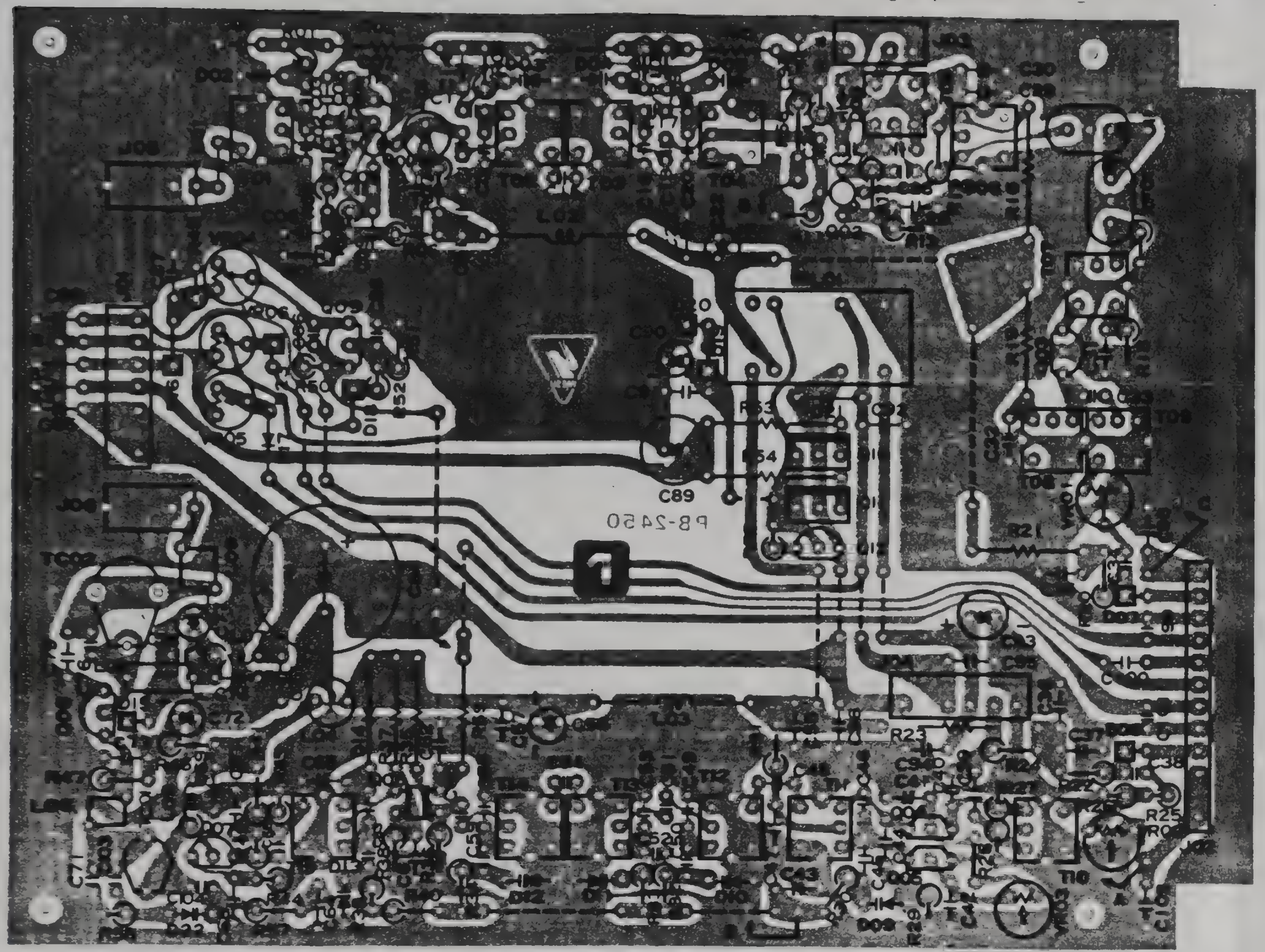


3SK73Y

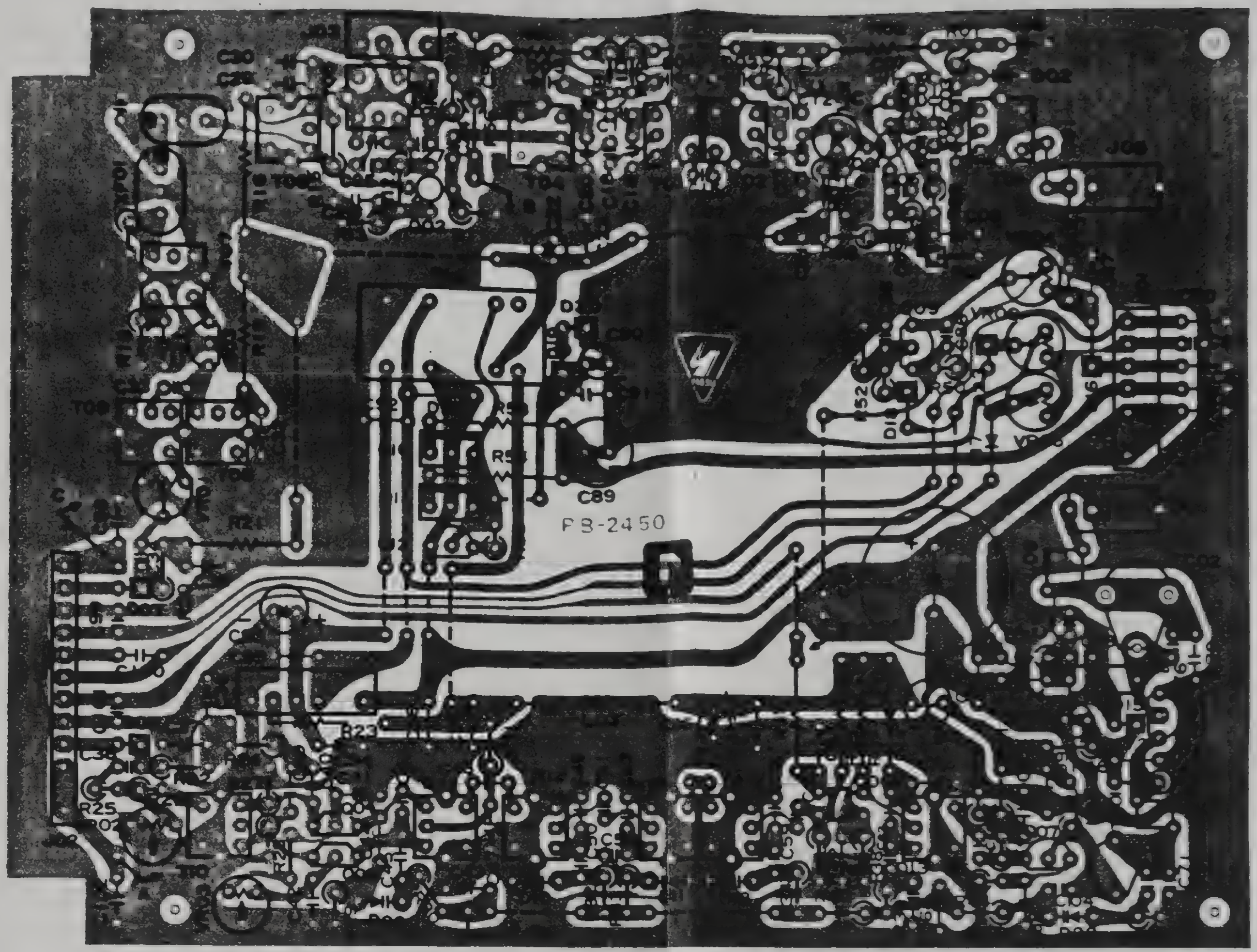


2SD471L

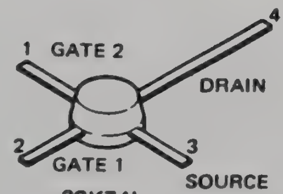
50 MHz MODULE: RF UNIT PARTS LAYOUT



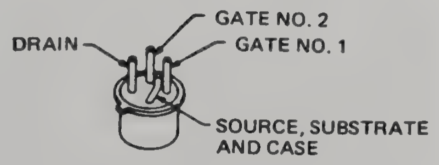
Viewed from component side



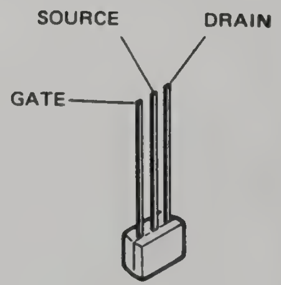
Viewed from solder side



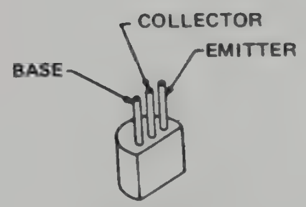
3SK74L



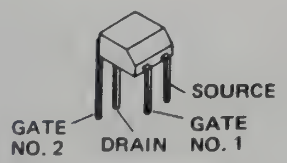
3SK51-03



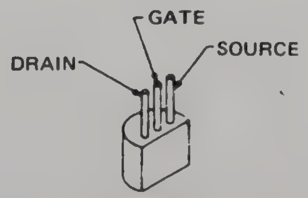
2SK241



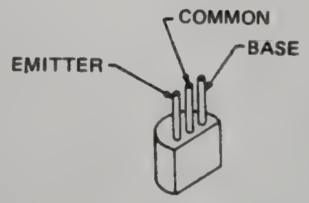
2SA733AQ
2SC460B



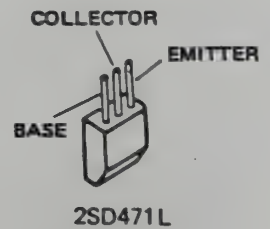
3SK73Y



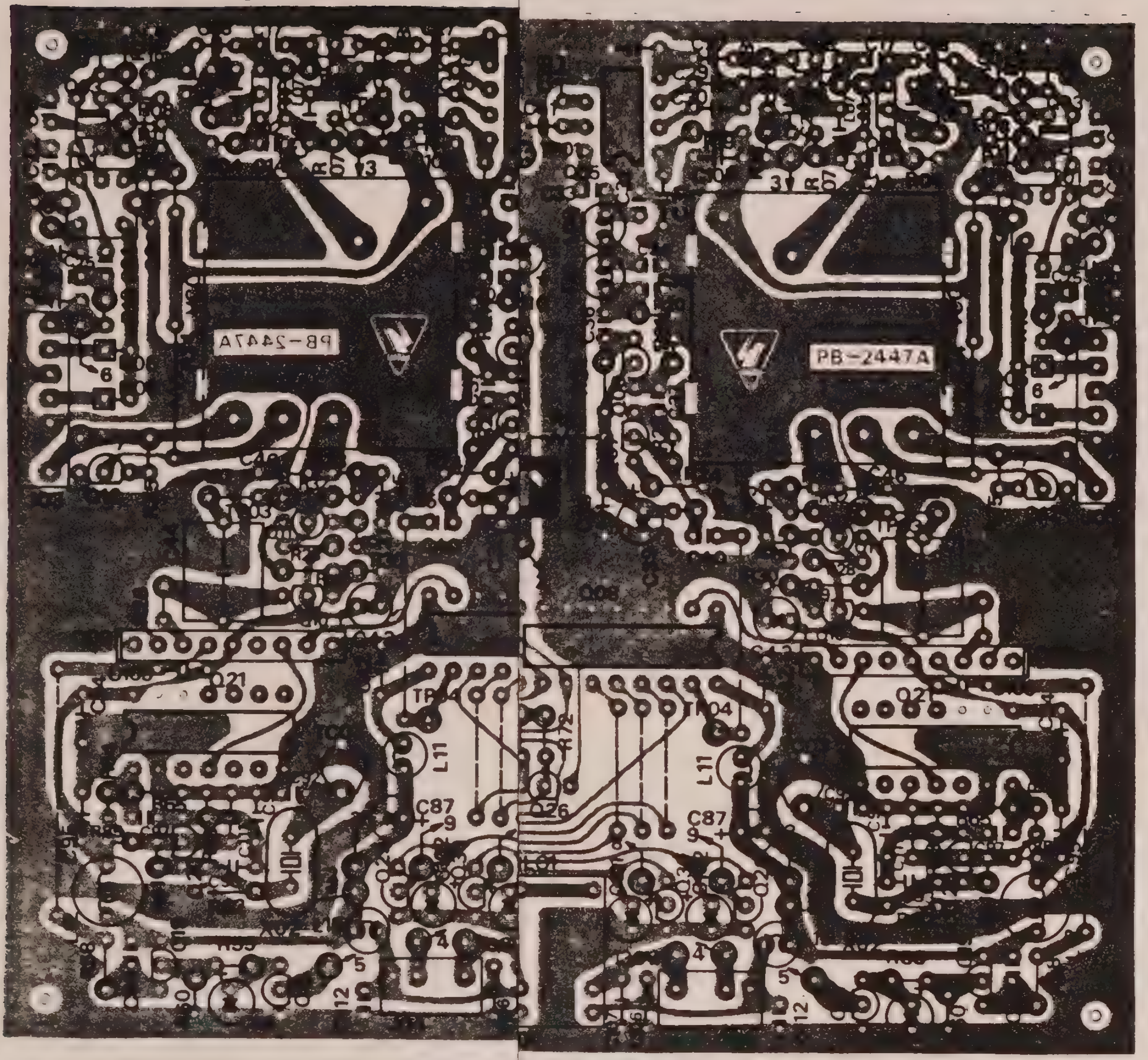
2SK125



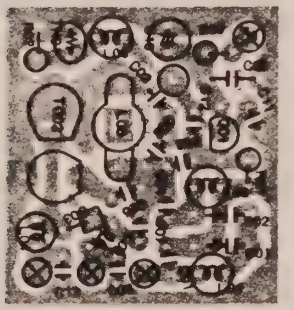
2SC2053



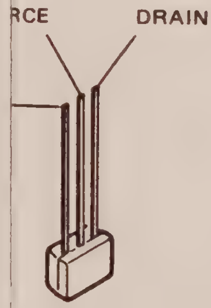
2SD471L



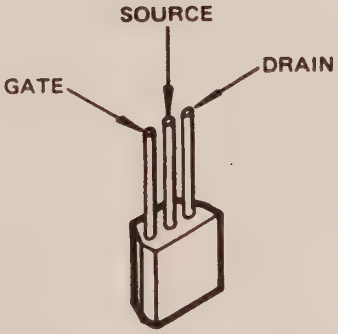
Viewed from solder side



VCO UNIT



2SK241Y



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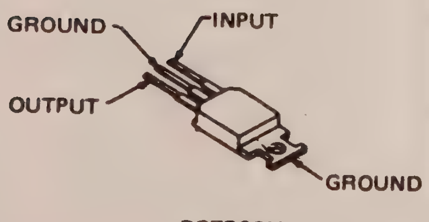
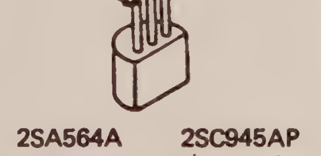


μPC7808H

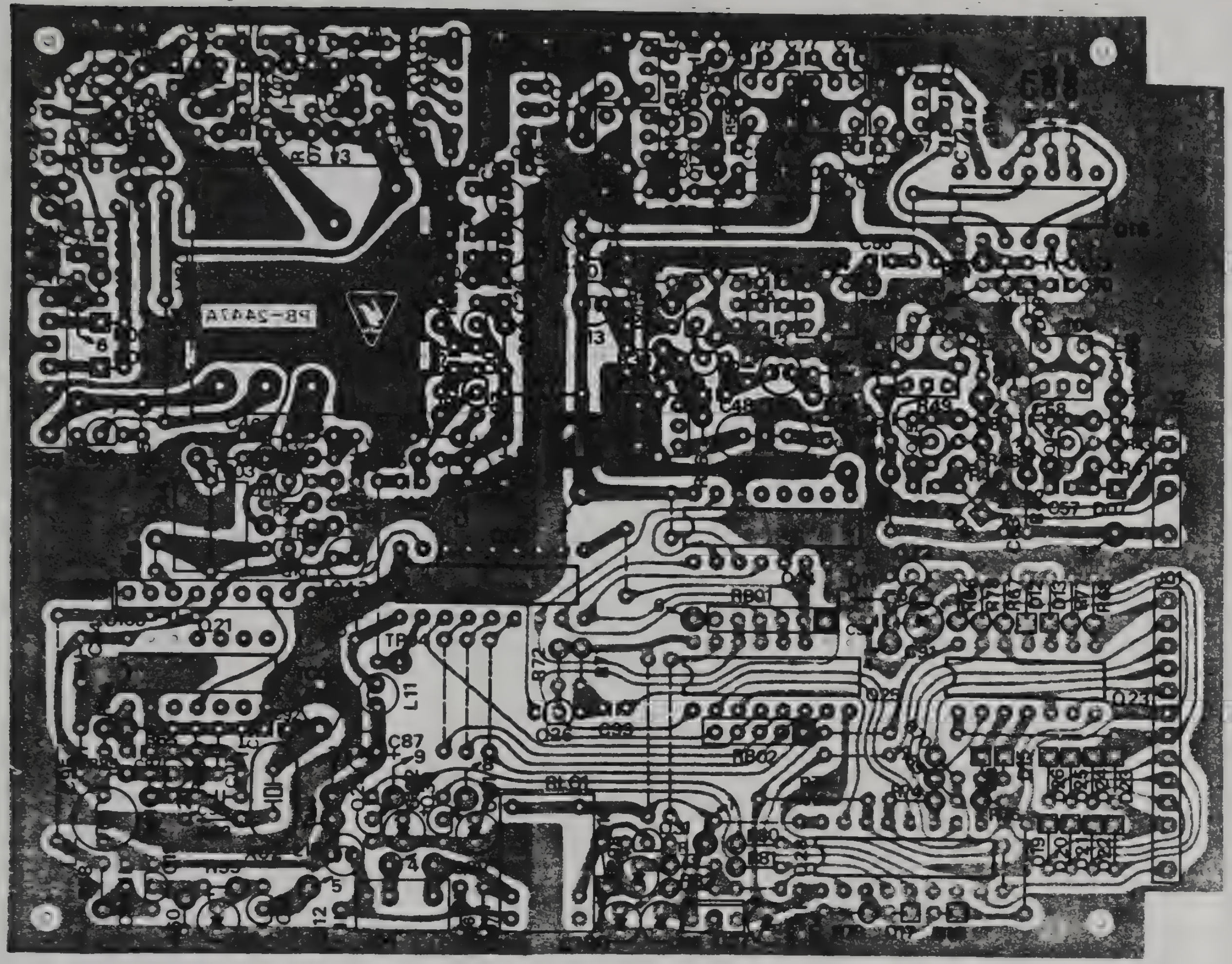
RCE
E
1



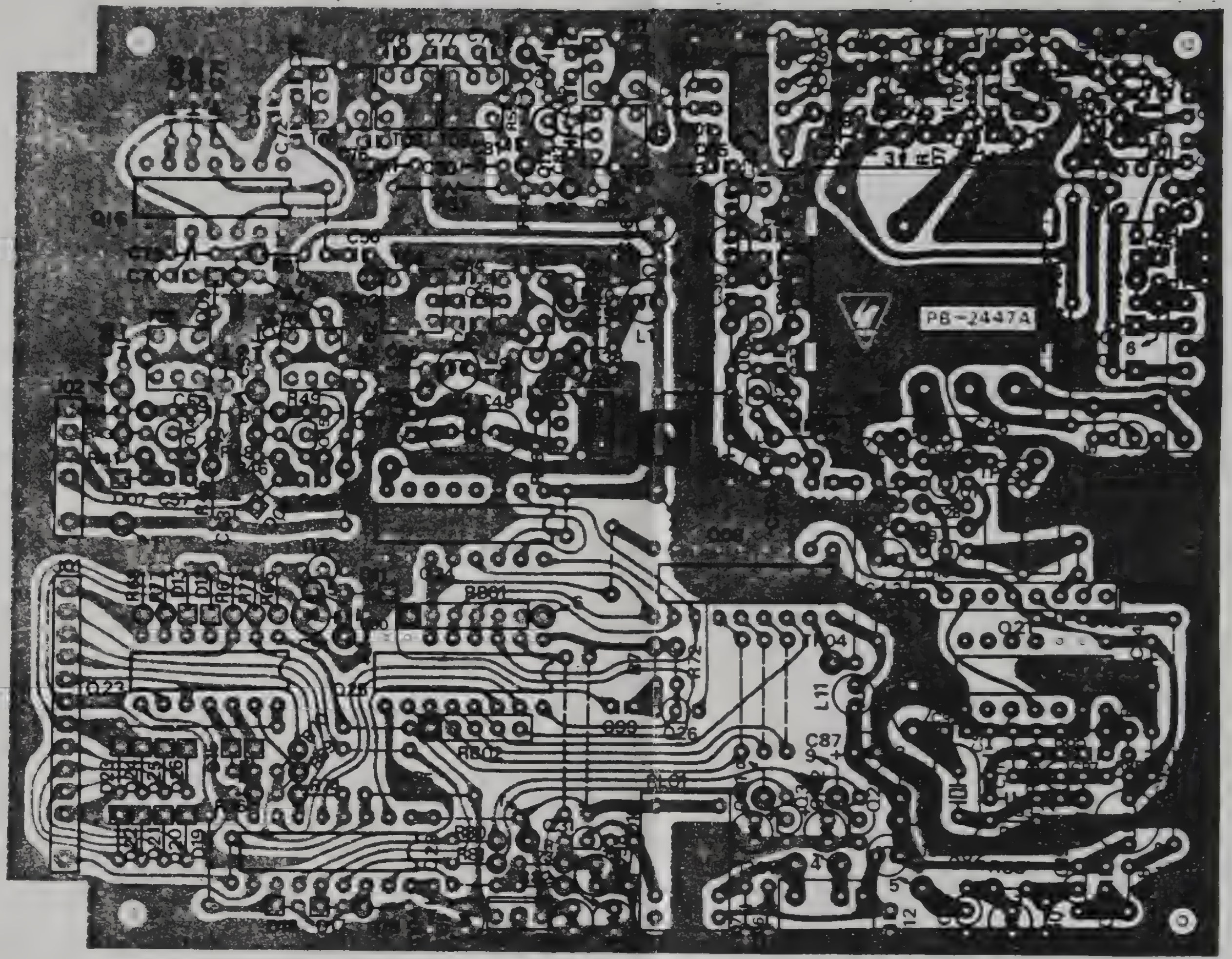
2SA564A
2SC460B
2SC535B

2SC945AP
2SD892Q

50 MHz MODULE: PLL UNIT PARTS LAYOUT



Viewed from component side



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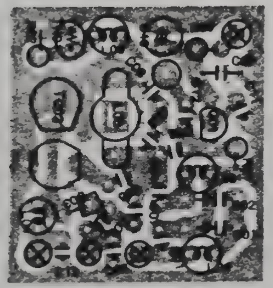

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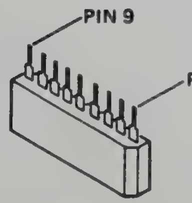

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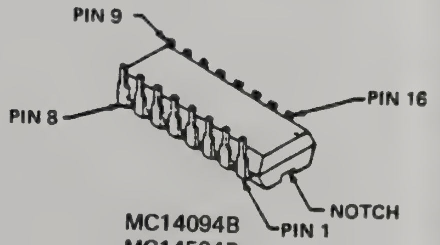

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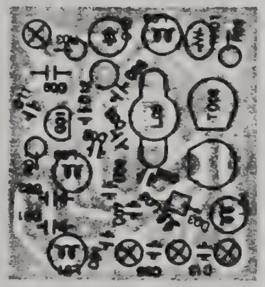

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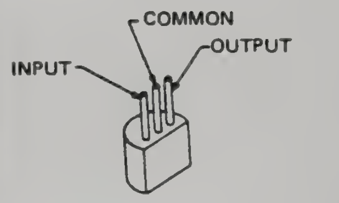
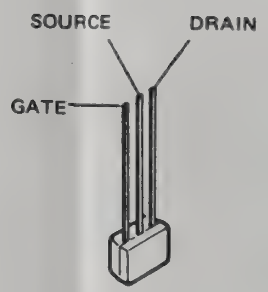


μPC 78L05



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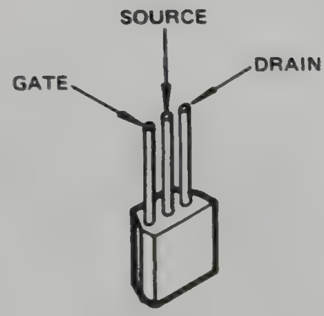

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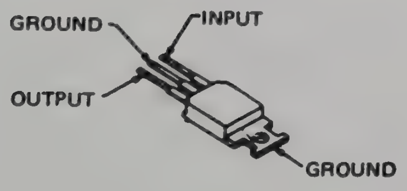

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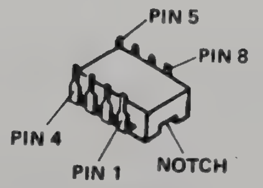

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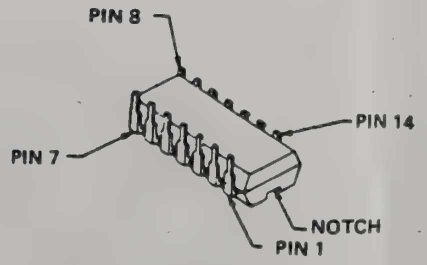

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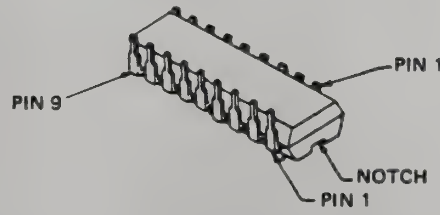

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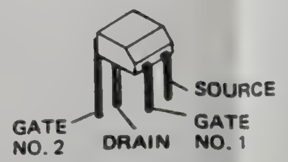
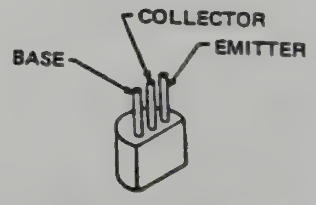


3SK73Y



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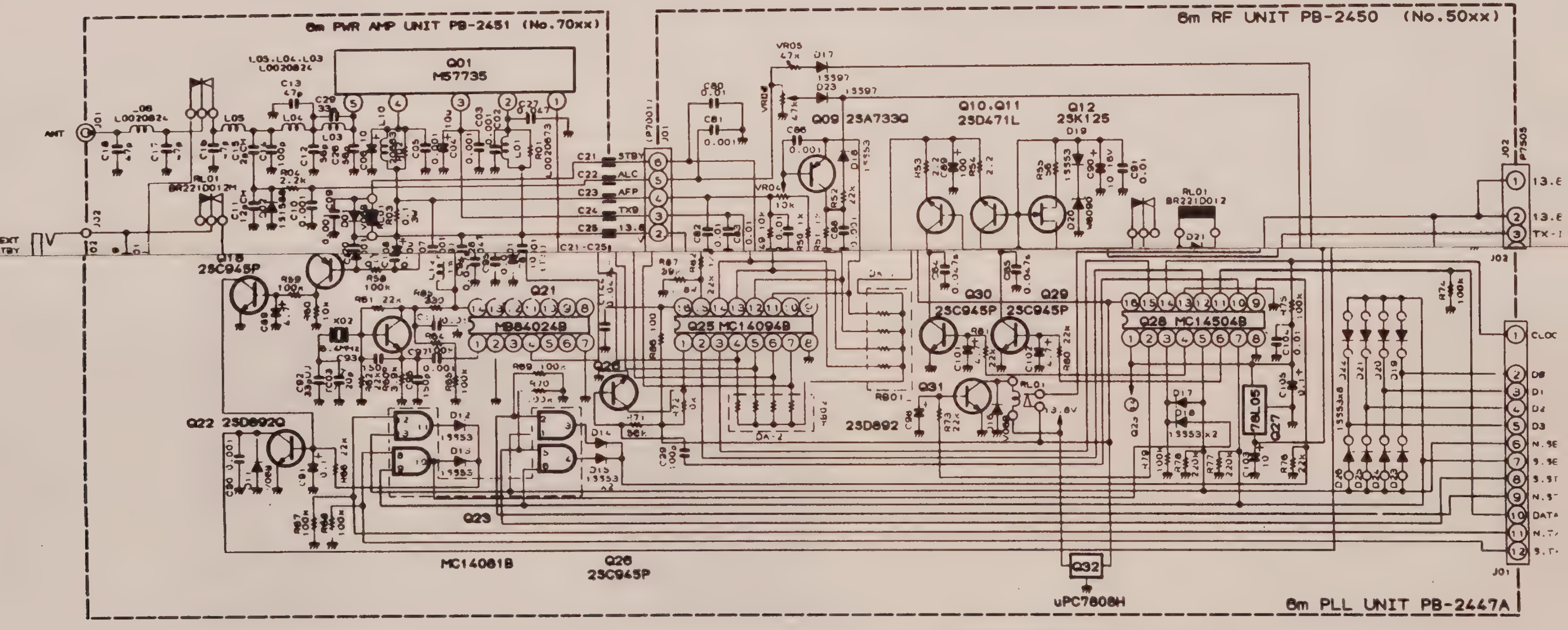
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6m RF UNIT PB-2450 (No.50xx)
6m PLL UNIT PB-2447A
Q01 M57735
ANT
EXT STBY
J01
J02
L05.L04.L03 L0020824
L06 L0020824
RL01 BR221D012M
C21-C25
STBY
ALC
AFP
TX9
13.8
(P7001)
Q09 2SA733Q
Q10,Q11 2SD471L
Q12 2SK125
RL01 BR221D012
P7505
13.8
TX-
Q18 2SC945P
Q21 MB84024B
Q25 MC14094B
Q28 MC14504B
Q30 2SC945P
Q29 2SC945P
Q31 2SD892
Q22 2SD892Q
Q23 MC14081B
Q26 2SC945P
Q32 uPC7808H
Q27 78L05
CLOC
D0
D1
D2
D3
N.SE
S.SE
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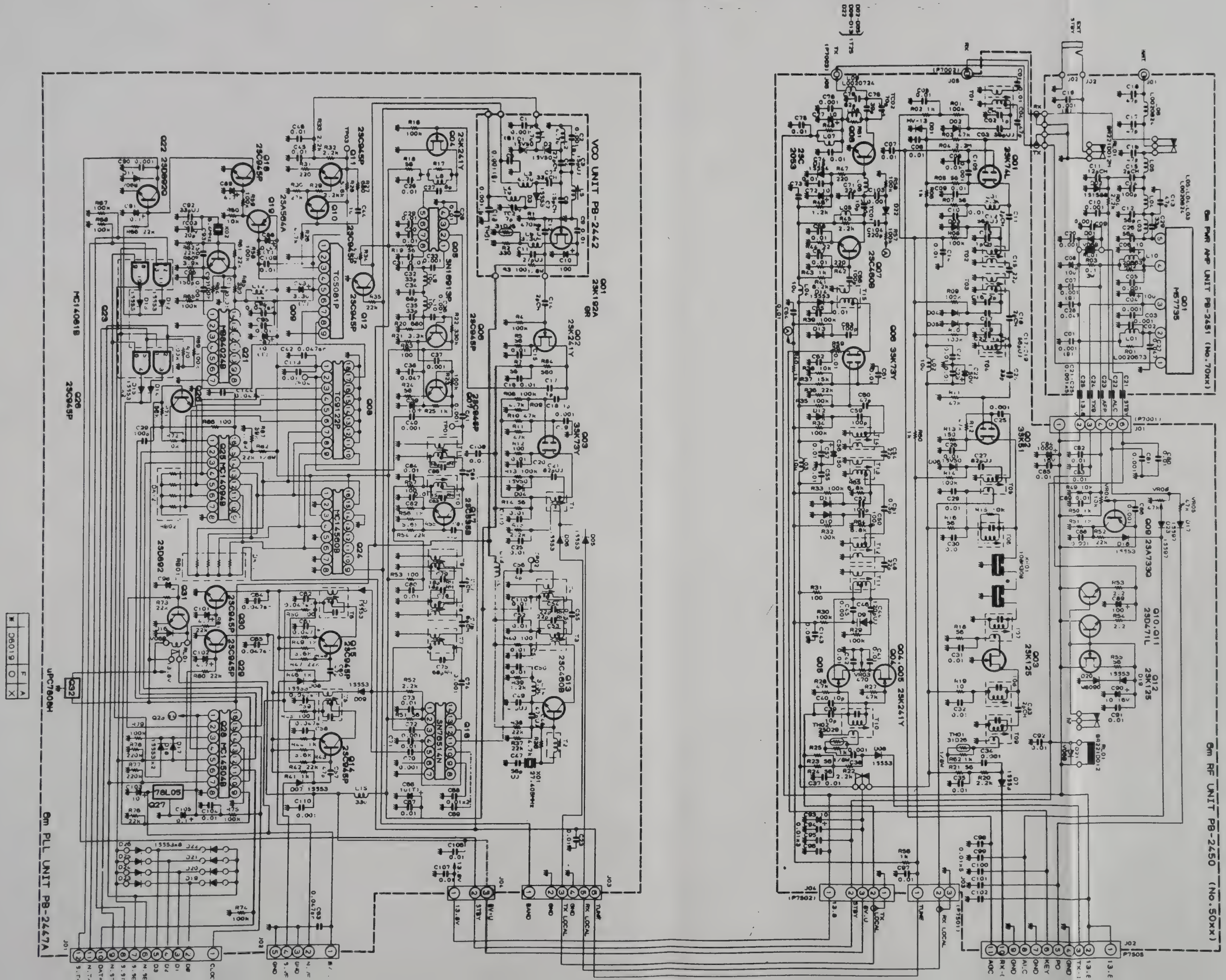
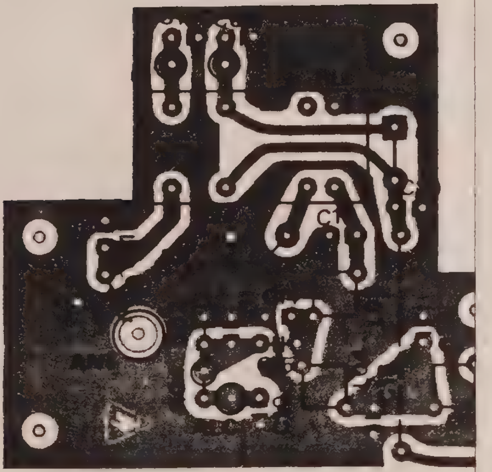
N.ST
DATA
N.T
S.T

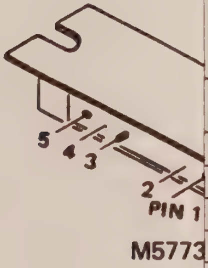
		F	A
*	D6019	O	X

50 MHz MODULE SCHEMATIC DIAGRAM



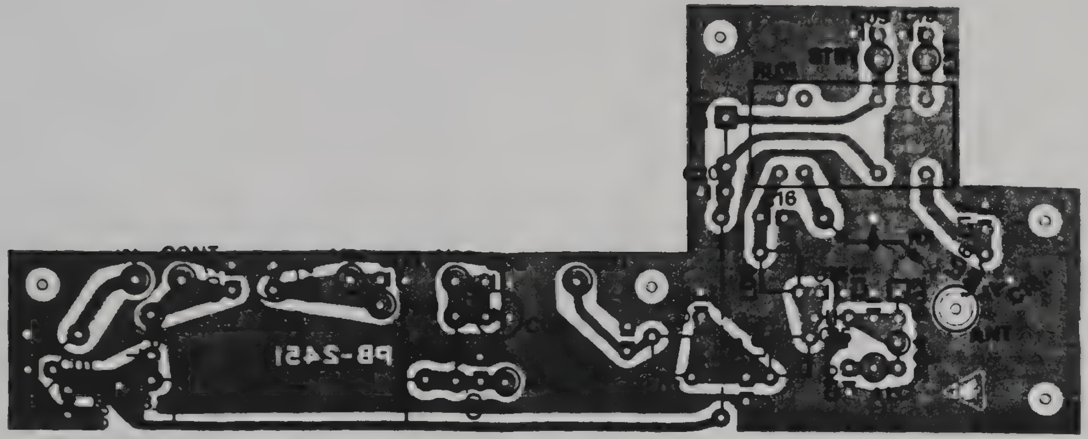
RTS



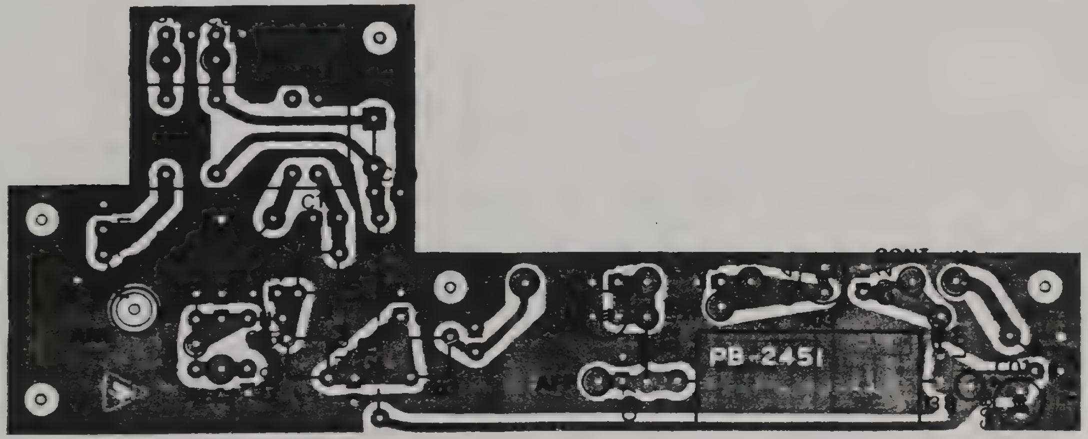


13	14	15	16	17	18	REMARKS
0	0	0	0	1.0	0	
6.9	0					
0	8.0					
4.2	5.0					
0	0	0	8.1			
0	0	5.1	7.9			
0	4.9	8.1	8.1			
						RX

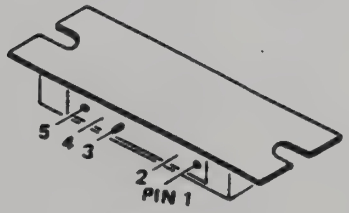
50 MHz MODULE: PA UNIT PARTS LAYOUT AND VOLTAGE CHARTS



Viewed from component side



Viewed from solder side

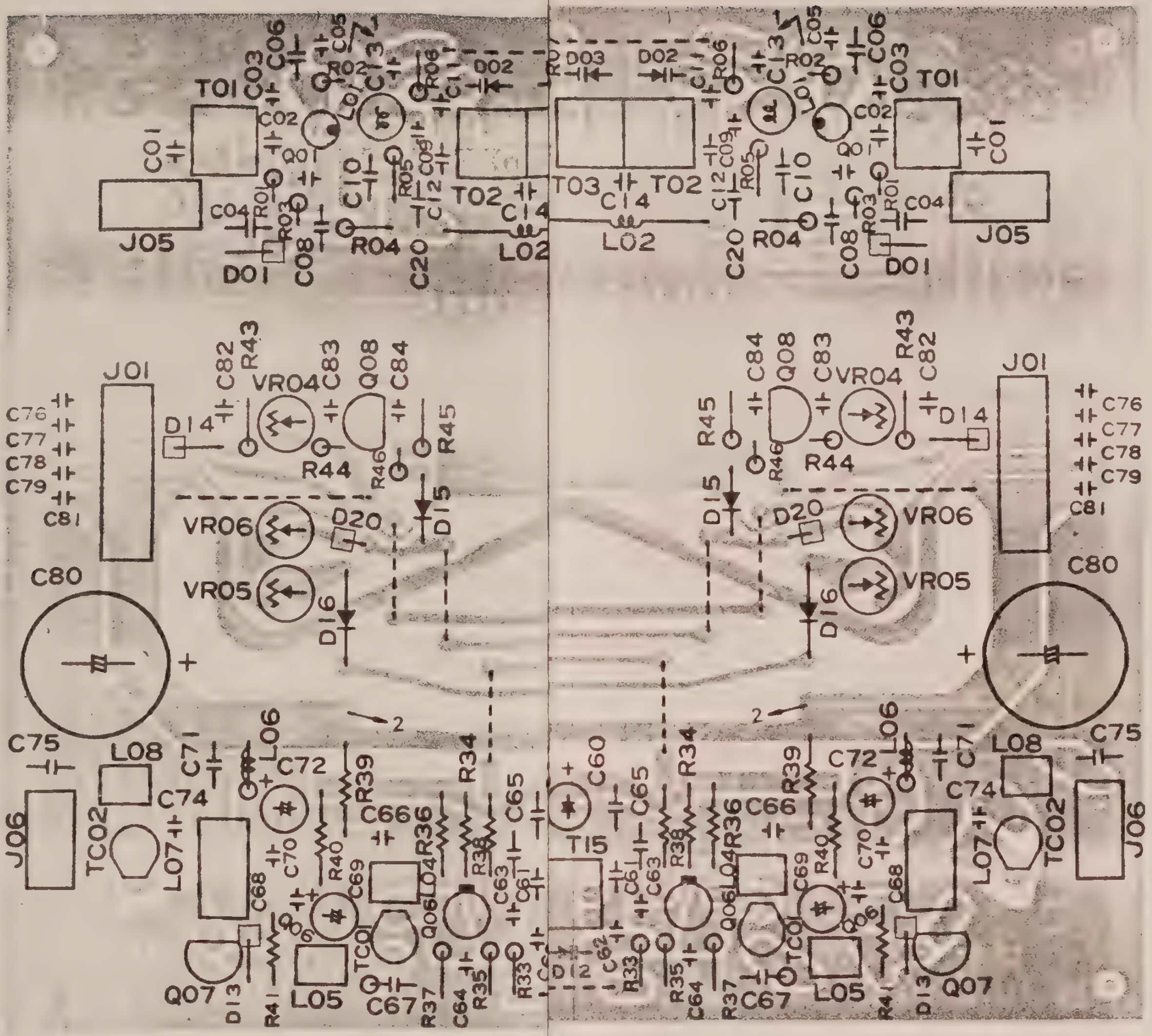


M57735

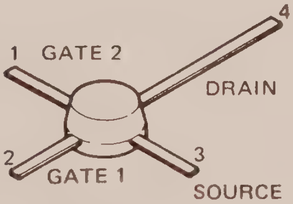
50 MHz MODULE VOLTAGE CHART (DC VOLTS)

	E(S)		C(D)		B(G1)		(G2)		REMARKS
	R	T	R	T	R	T	R	T	
Q5001	1.3		7.9		1.4		1.9		
Q5002	0.3		7.8		0		0.3		
Q5004		0.5		7.7		0			
Q5003	1.3		7.9			0			
Q5005		0.5		7.7		0			
Q5006		1.3		7.3		1.5		4.0	
Q5007		0.1		8.1		0.8			
Q5008		0		13.7		0.7			
Q5009		13.7		0		13.2			
Q5010		9.4		13.7		10.0			
Q5011		9.4		13.7		10.0			
Q5012		12.0		13.7		10.0			
Q6001	0.7		7.8		0				
Q6002	0.2		5.8		0				
Q6003	0.5		7.8		0.4		3.9		
Q6004	0		7.8		0				
Q6006	4.9		7.5		5.5				
Q6007	0.3		2.8		0.9				
Q6010	0.9		8.0		1.4				
Q6011	0.3		1.6		0				
Q6012	0		1.0		0.3				
Q6013	3.5		7.8		3.7				
Q6014	8.1		8.1		8.1				
Q6015	1.0		8.0		1.7				
Q6017	0.9		7.9		1.6				
Q6018	0		0		0.6				
Q6019	8.1		7.3		8.0				
Q6020	4.9		7.6		3.7				
Q6022	0		13.7		0				
Q6026	0		0		0.6				
Q6029	0		8.1		0				
Q6030	0		0		0.7				
Q6031	0		0.8		1.4				

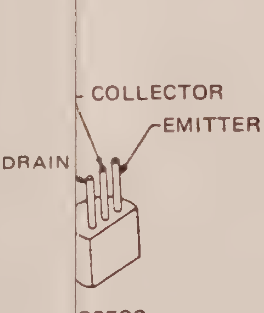
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	REMARKS
Q6005	6.3	3.8	2.7	0	2.7	3.8	3.8	7.6											
Q6008	8.1	3.1	0	0	0	0	0	0	7.8	0	0	0	0	0	0	0	1.0	0	
Q6009	8.0	0	1.4	8.0	8.0	0	4.0	1.0	0										
Q6016	0	7.7	6.9	3.9	2.6	0	0	–	2.6	3.9	–	3.9	6.9	0					
Q6021	3.8	0	4.0	4.0	4.0	4.0	0	0	3.9	–	3.9	4.2	0	8.0					
Q6023	0	0	0	0	0	0.2	0	0	0.2	0	0	0	4.2	5.0					
Q6024	0	0	8.1	0	0	0	0	0	0.3	0	8.1	0	0	0	0	8.1			
Q6025	0	0	8.1	0	0	0	0	0	0	0	0	0	0	0	5.1	7.9			
Q6027	5.0	0	8.1																
Q6028	4.9	8.0	3.6	8.0	4.2	0	0.1	0	0	0	0	0	0	4.9	8.1	8.1			
Q6032	13.7	0	8.1																
Q7001	0	13.7	0	13.7	0														RX



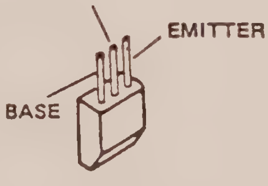
Viewed from solder side



3SK74L

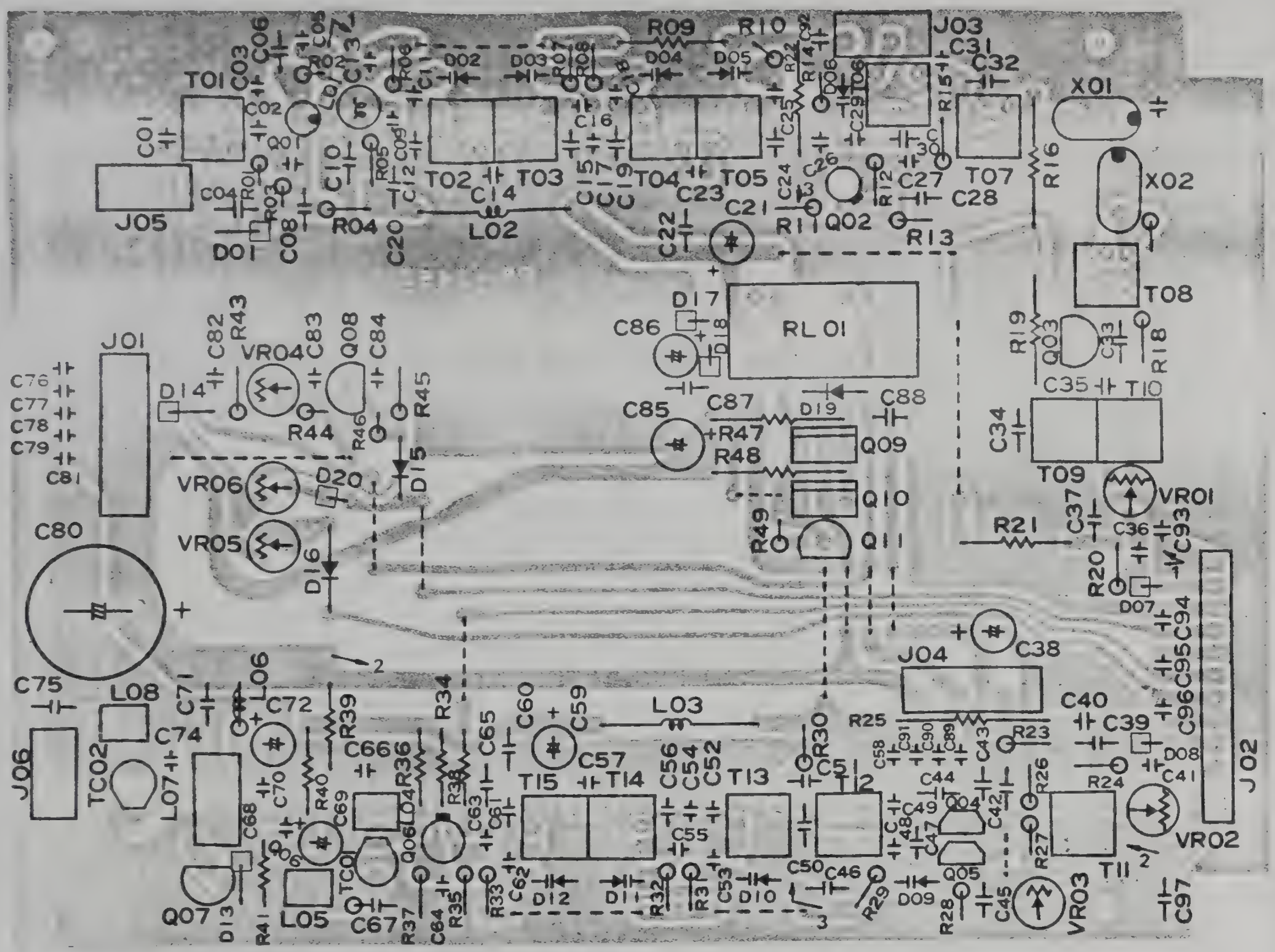


C2583

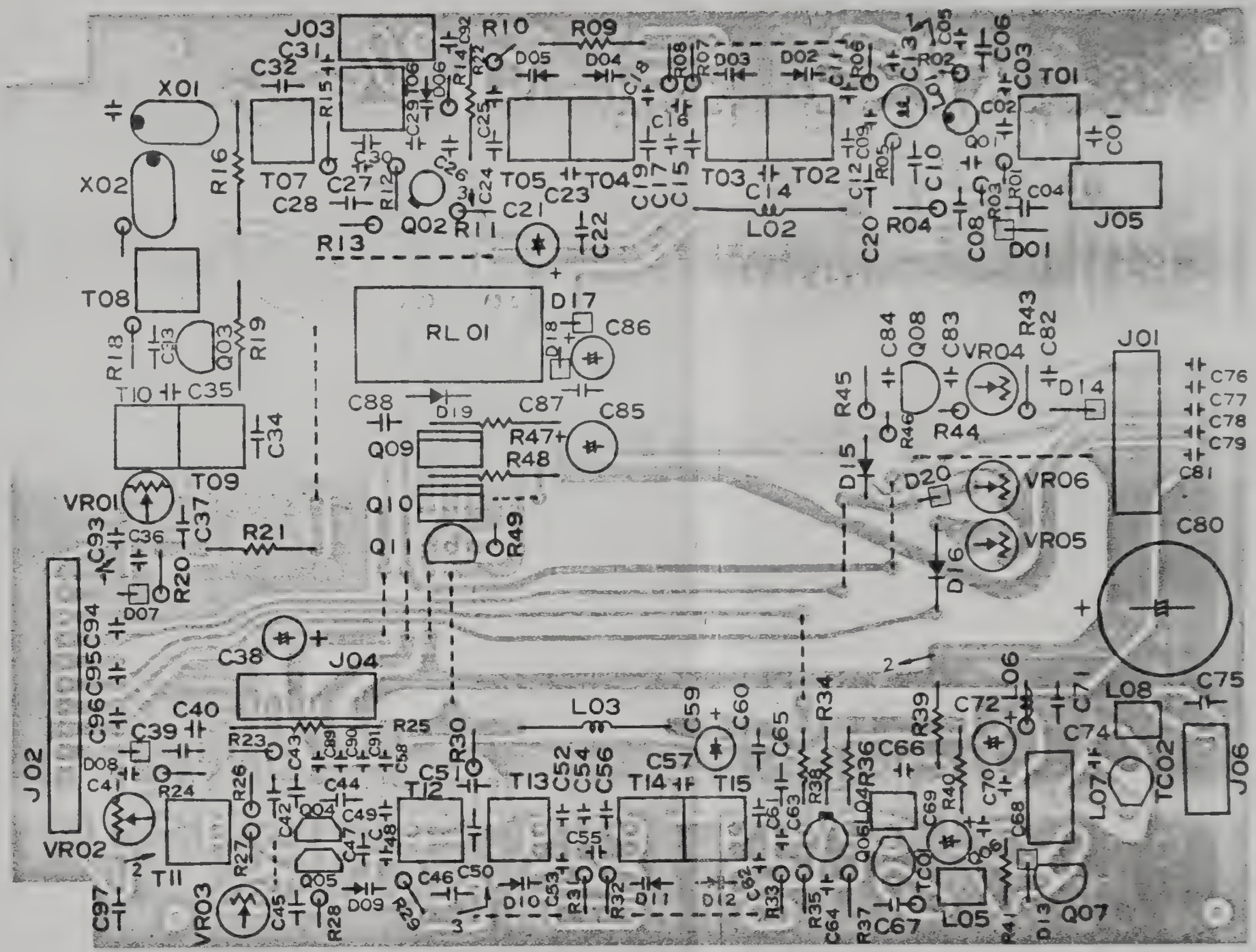


2SD471L

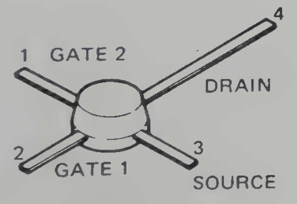
144MHz MODULE: RF UNIT PARTS LAYOUT



Viewed from component side



Viewed from solder side



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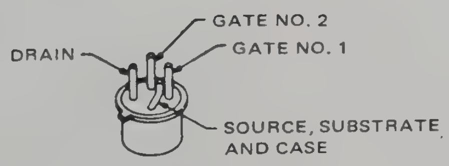

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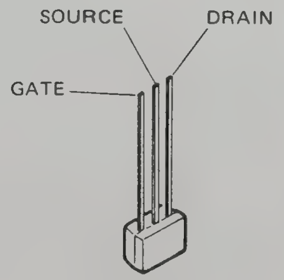
3SK70



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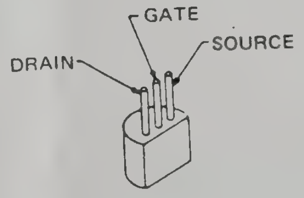

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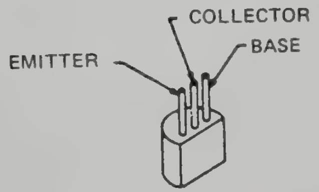

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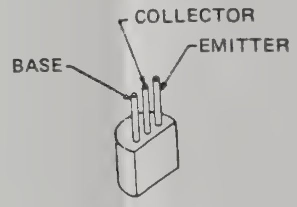

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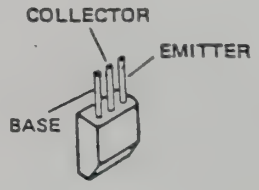

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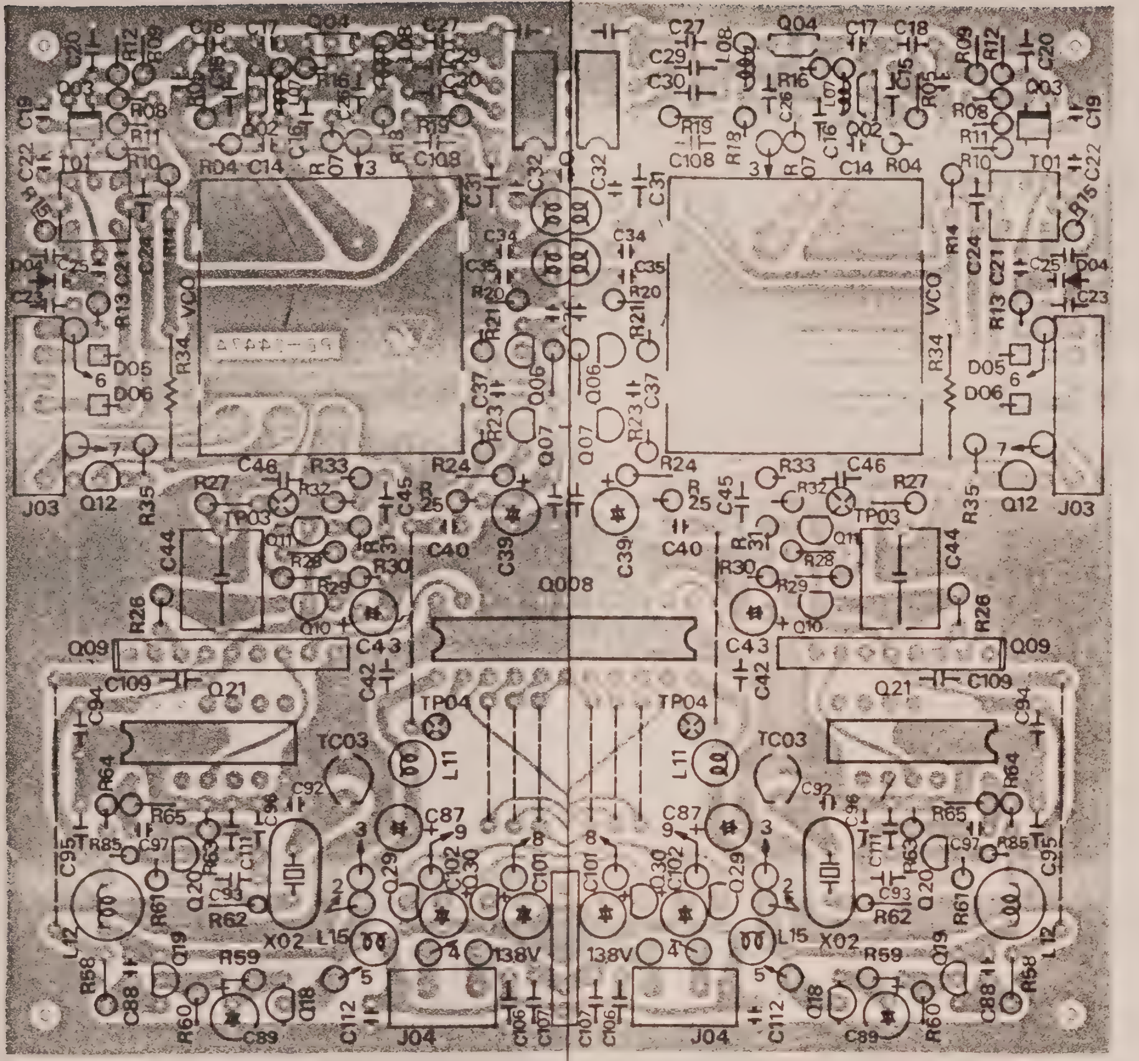
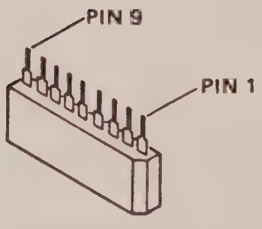


Viewed from solder side



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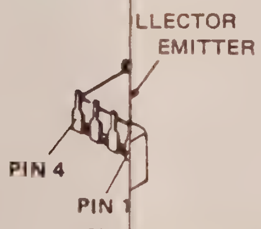

SN1 2SC945AP
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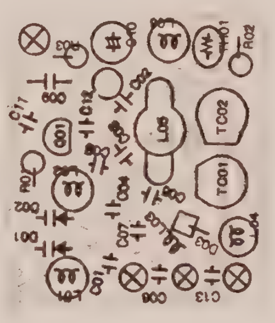
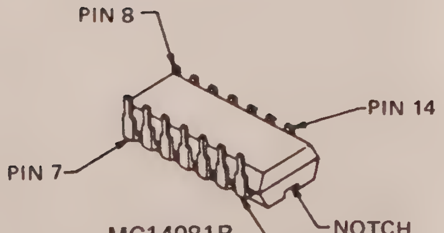


VCO UNIT



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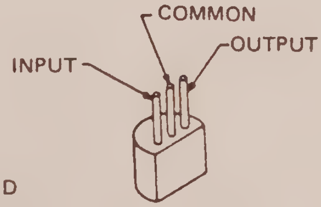
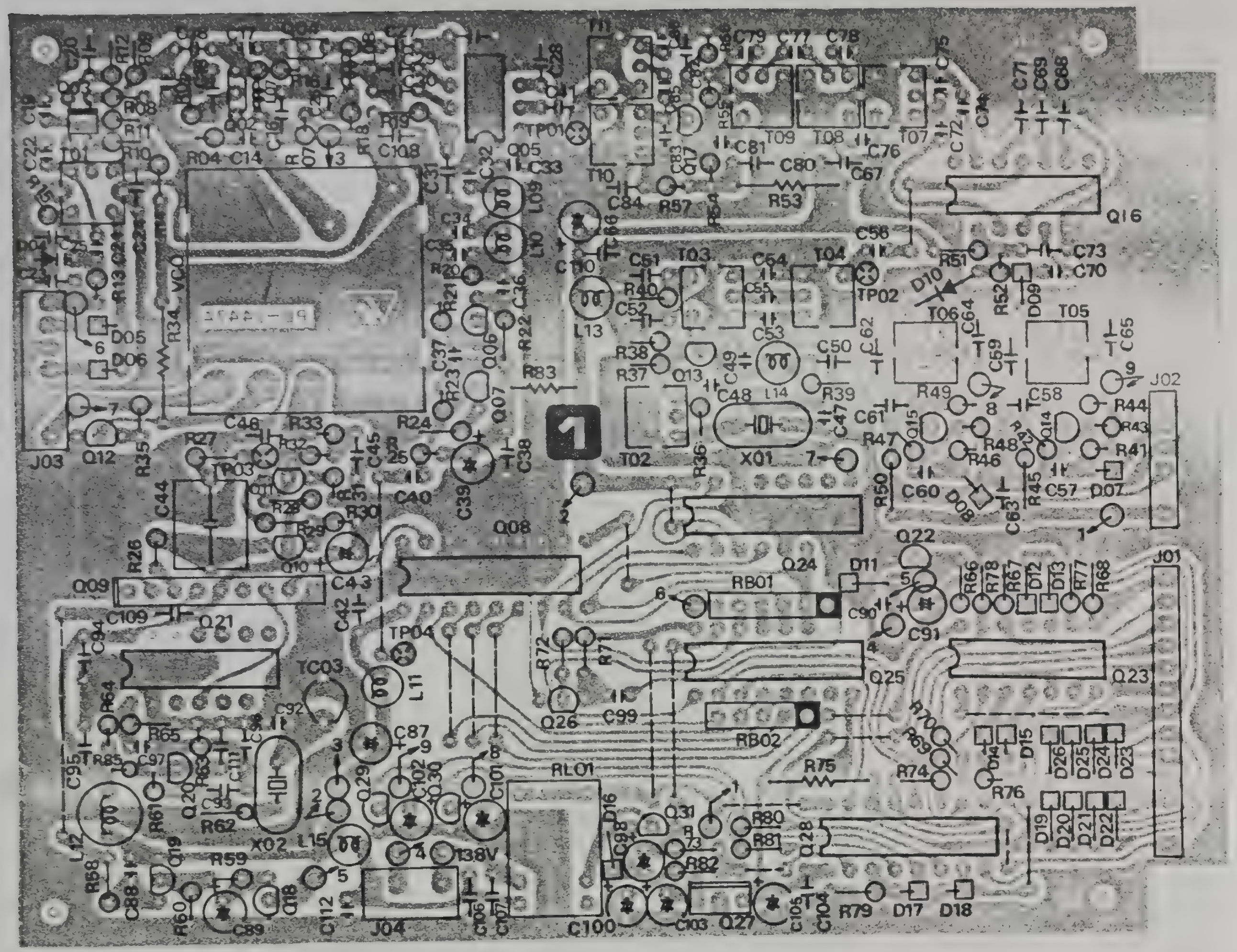


144MHz MODULE: PLL UNIT PARTS LAYOUT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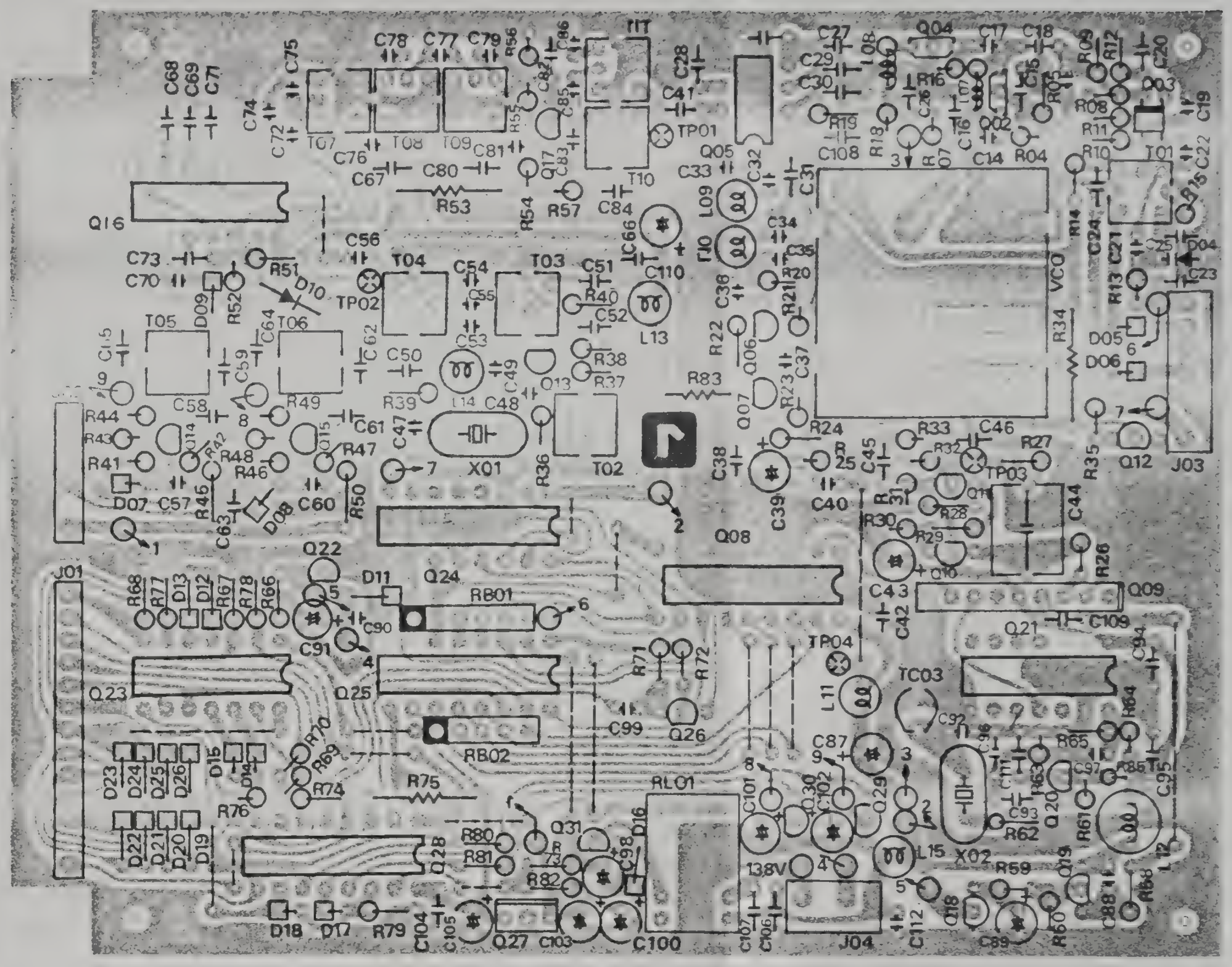
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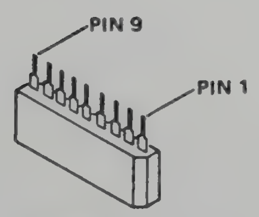

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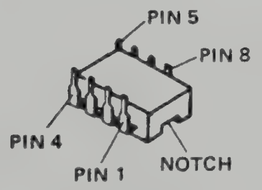

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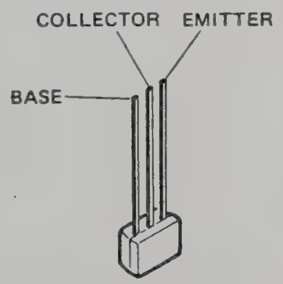

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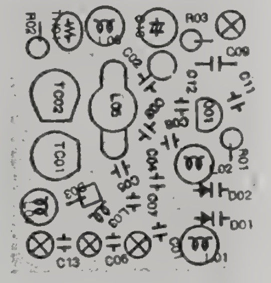
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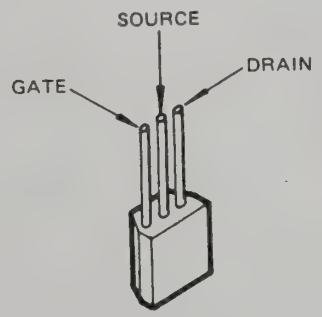

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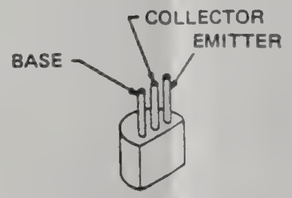

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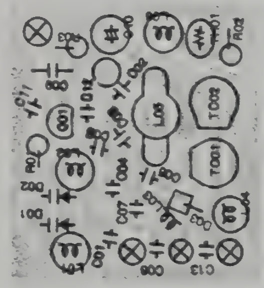
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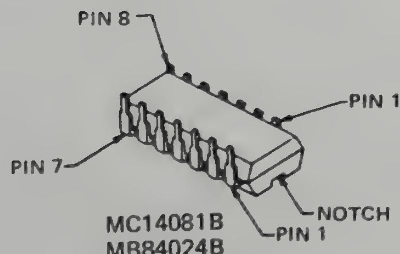

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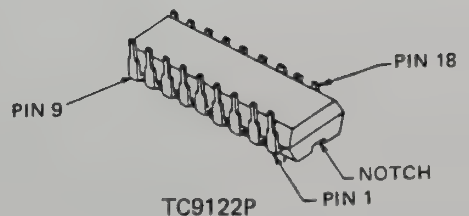

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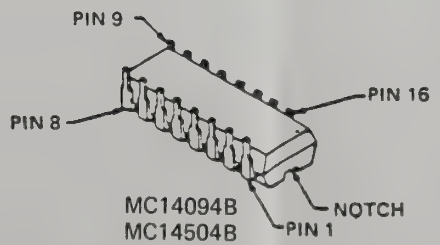

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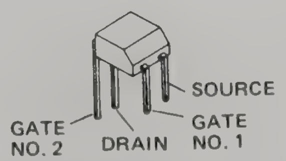

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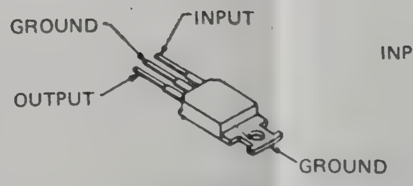

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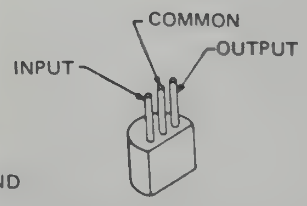
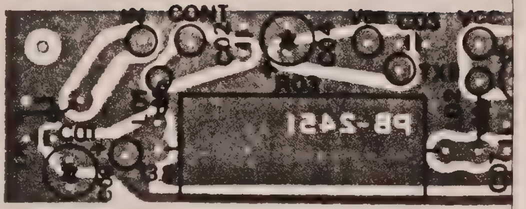
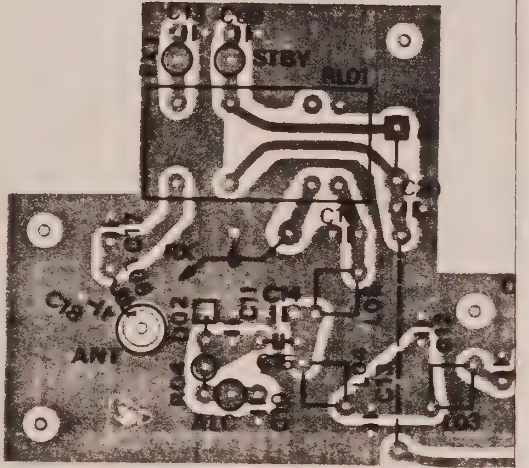


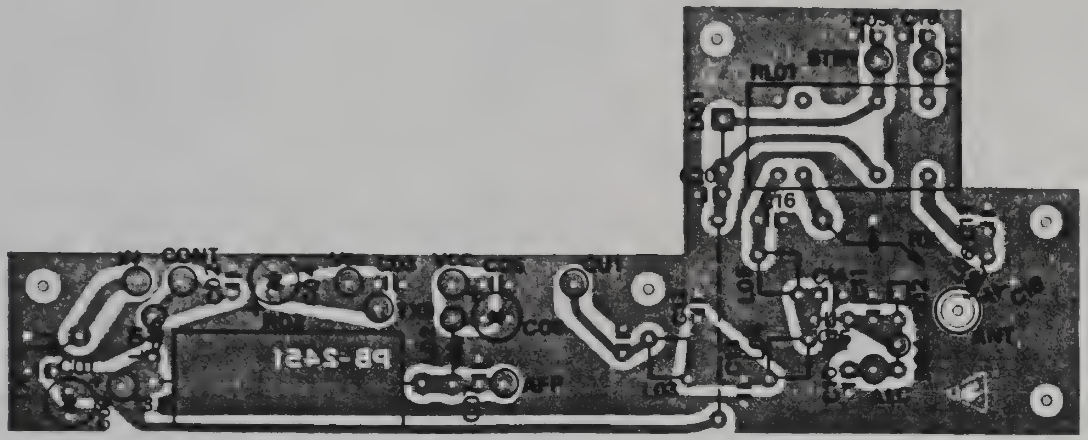
µPC78L05



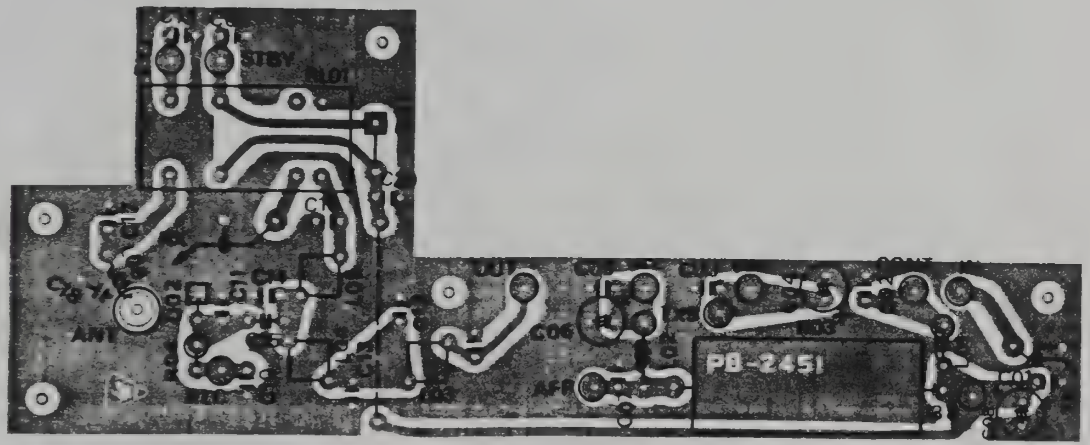


13	14	15	16	17	18	REMARKS
0	0	0	0	0.8	0	
6.9	–					
–	8.2					
4.2	5.0					
8.2	0	7.4	8.2			
0	7.4	5.2	7.4			
0	4.9	8.1	8.2			
						TX

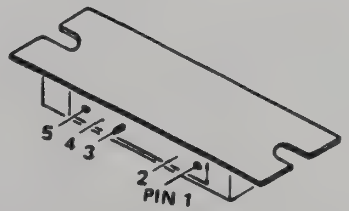
144MHz MODULE: PA UNIT PARTS LAYOUT AND VOLTAGE CHARTS



Viewed from component side



Viewed from solder side

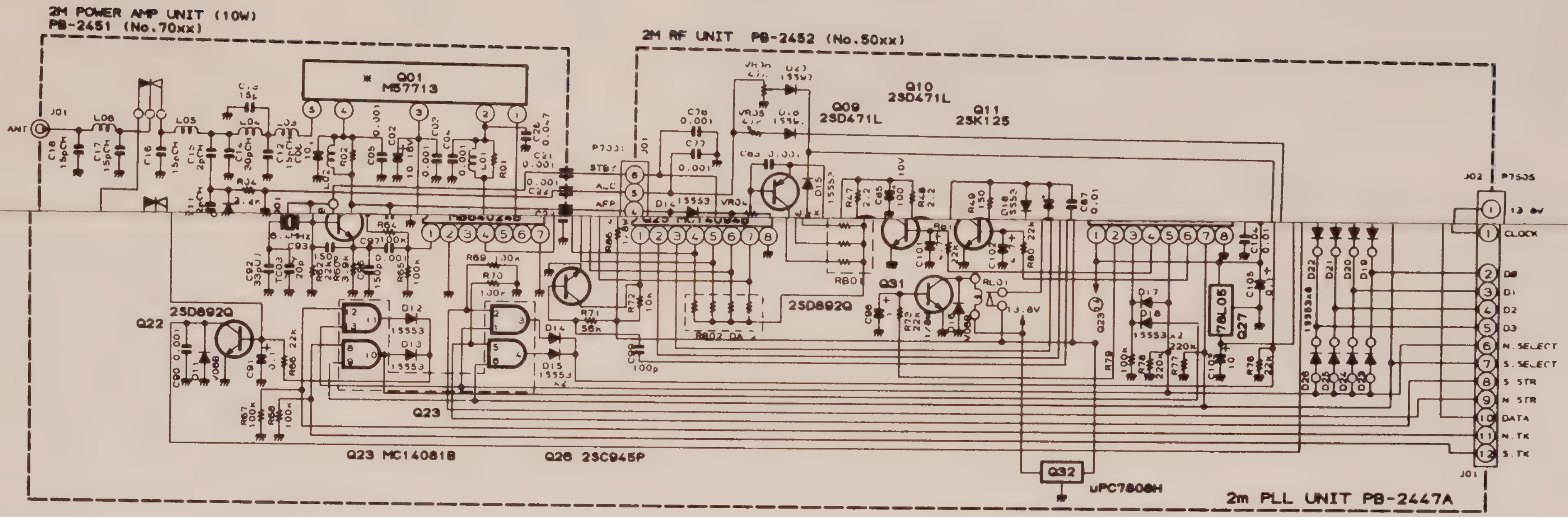


M57713

144 MHz MODULE VOLTAGE CHART (DC VOLTS)

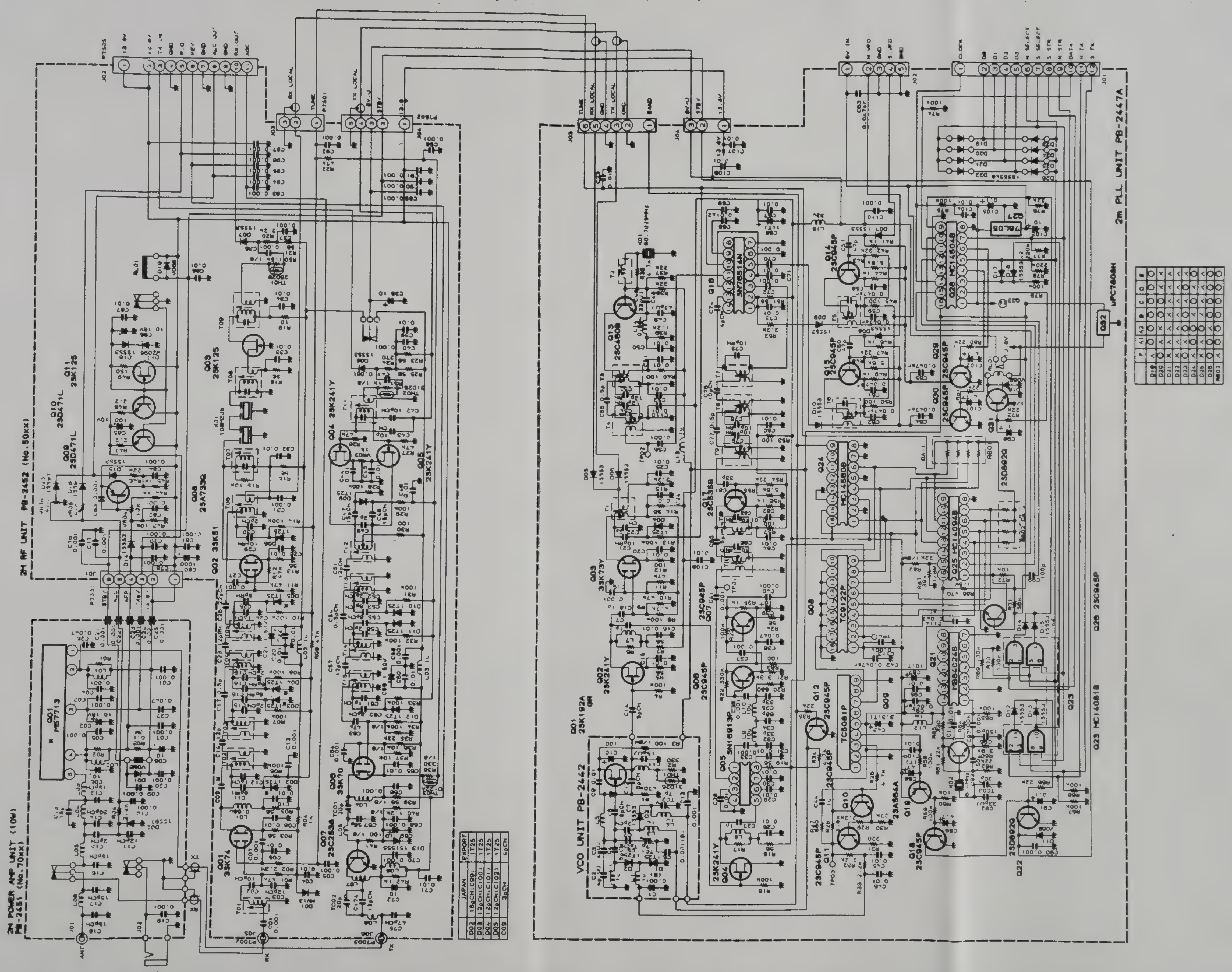
	E(S)		C(D)		B(G1)		(G2)		REMARKS
	R	T	R	T	R	T	R	T	
Q5001	1.7		7.9		1.4		2.5		
Q5002	0.2		7.8		0		0.2		
Q5003	1.4		7.9		0				
Q5004		0.7		7.9		0			
Q5005		0.7		7.9		0			
Q5006		1.5		13.4		1.5		4.1	
Q5007		0		13.7		0.7			
Q5008		13.7		0		13.2			
Q5009		9.4		13.6		10.0			
Q5010		9.4		13.6		10.0			
Q5011		11.9		13.6		10.0			
Q6001	0.7		7.8		0				
Q6002	0.2		7.9		0				
Q6003	0.5		7.8		0.4		3.9		
Q6004	0		7.7		0				
Q6006	5.2		7.5		5.7				
Q6007	0.3		2.5		0.9				
Q6010	0.7		8.1		1.2				
Q6011	0.1		5.3		0.7				
Q6012	0		1.0		0.3				
Q6013	3.2		8.1		3.9				
Q6014	8.1		8.1		8.0				NOR VFO
Q6015	1.0		8.0		1.7				NOR VFO
Q6017	0.9		7.9		1.6				
Q6018	0		1.5		0				
Q6019	8.2		0		8.0				
Q6020	4.6		7.7		3.8				
Q6022	0		0.9		1.5				
Q6026	0		0		0.6				
Q6029	0		8.1		0				NOR VFO
Q6030	0		0		0.7				NOR VFO
Q6031	0		1.4		0.8				

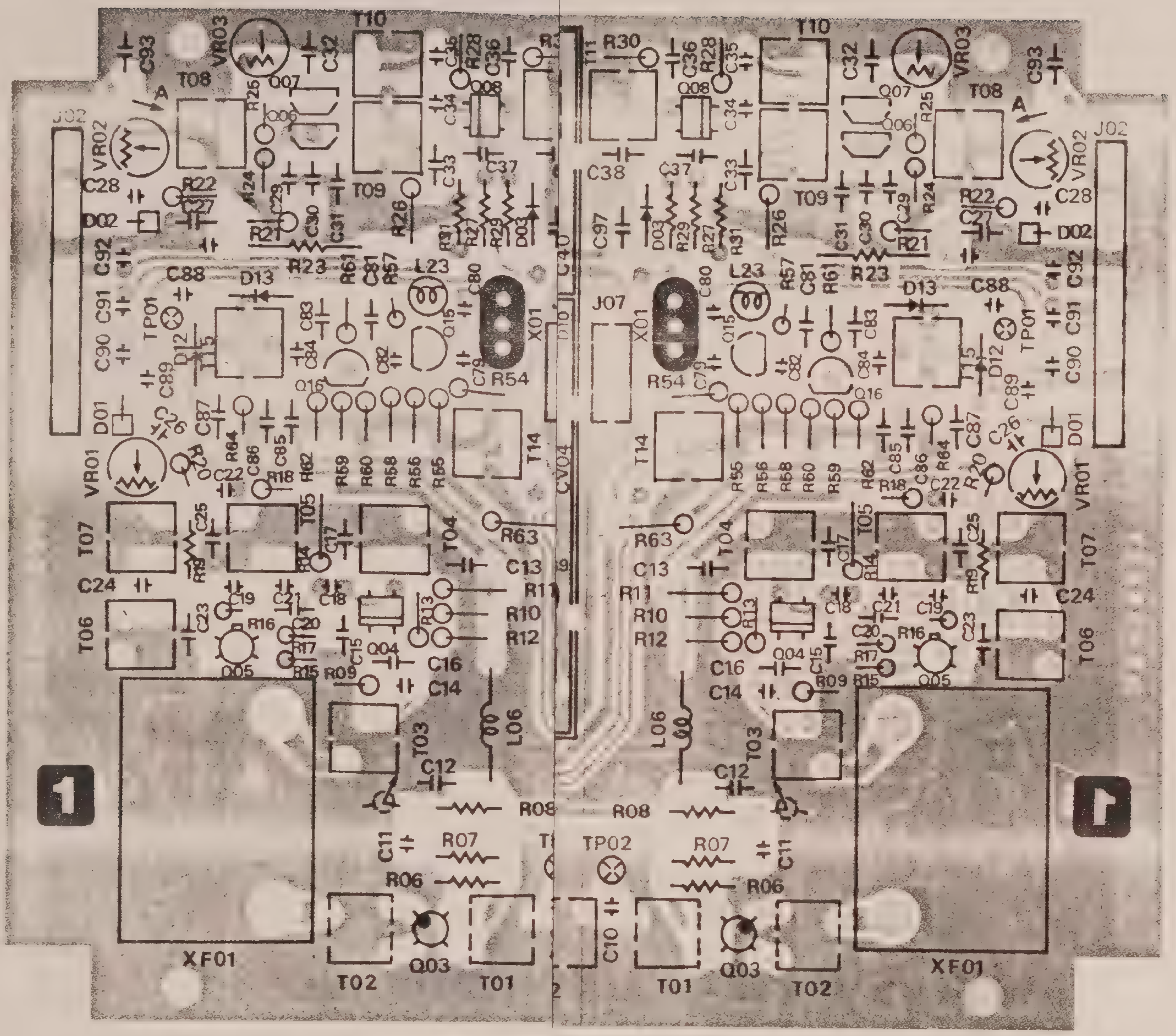
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	REMARKS
Q6005	6.3	3.8	2.7	0	2.7	3.8	3.8	7.6											
Q6008	8.2	3.3	0	0	0	0	7.4	0	7.4	0	0	0	0	0	0	0	0.8	0	
Q6009	8.2	0	1.2	8.1	8.2	–	4.1	0.8	0										
Q6016	0	7.8	6.9	3.9	2.6	0	0	–	2.6	3.9	3.9	3.9	6.9	–					
Q6021	3.8	0	4.1	4.1	4.1	4.0	0	–	4.0	–	3.9	4.2	–	8.2					
Q6023	4.2	0	0	0	0	0.1	0	0	0.1	0	4.9	4.8	4.2	5.0					
Q6024	0	0	8.2	7.4	0	0	0	0	0.3	8.2	0	0	8.2	0	7.4	8.2			
Q6025	0	0	8.1	0	0	0	0	0	0	0	0	7.4	0	7.4	5.2	7.4			
Q6027	5.0	0	8.2																
Q6028	5.0	8.1	3.6	8.1	4.2	0	0.1	0	0	0	0	0	0	4.9	8.1	8.2			
Q6032	13.7	0	8.2																
Q7001	0	13.7	9.2	13.6	0														TX



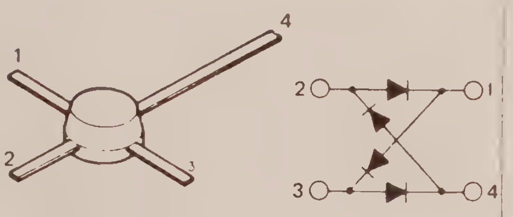
	F	A1	A2	B	C	D	E
D19	X	O	O	O	O	O	O
D20	O	X	X	O	O	X	X
D21	X	X	X	X	X	X	X
D22	X	X	X	X	X	X	X
D23	O	X	O	O	X	O	X
D24	X	O	O	X	O	X	O
D25	X	X	O	X	X	X	X
D26	O	O	X	O	O	O	O
RB02	X	O	O	O	O	O	O

144MHz MODULE SCHEMATIC DIAGRAM

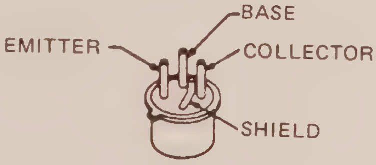




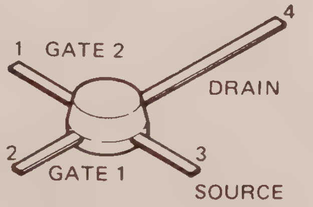
Viewed from solder side



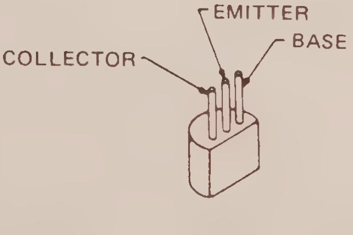
ND487C1-3R
ND487C2-3R



2SC1426

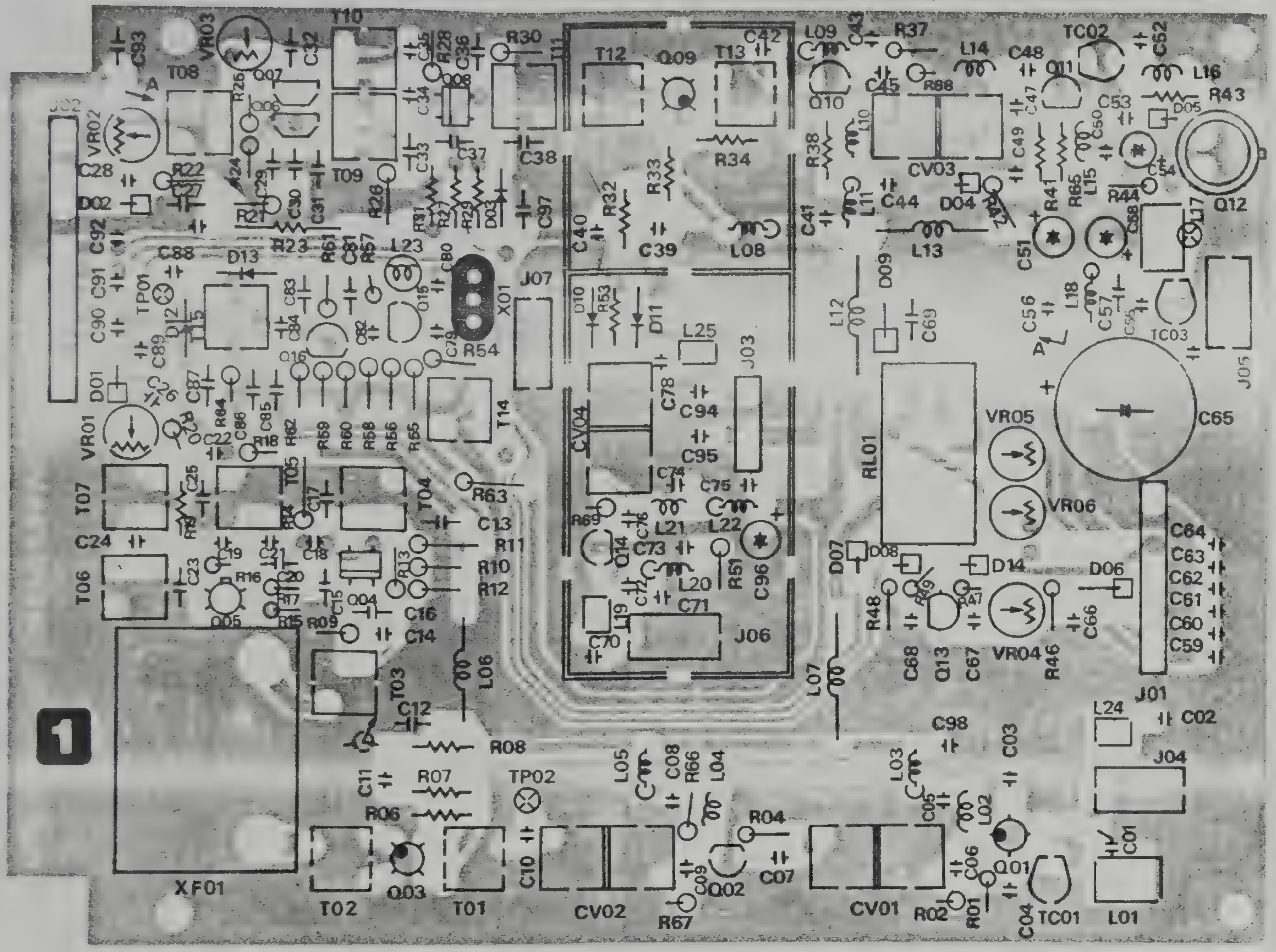


3SK121

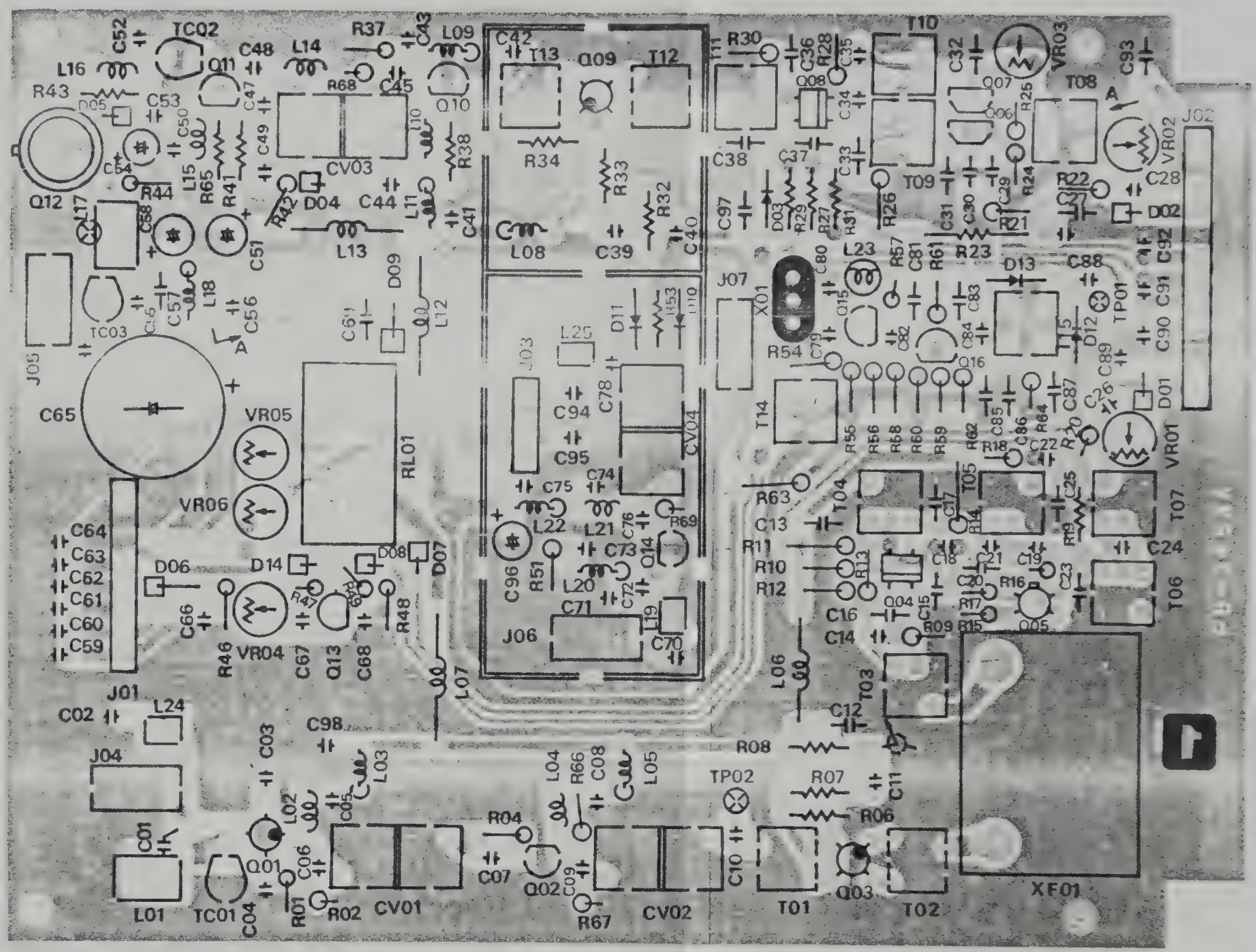


2SC2407

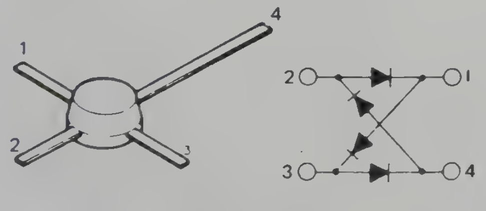
430 AND 440 MHz MODULES: RF UNIT PARTS LAYOUT



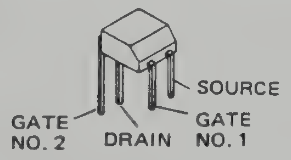
Viewed from component side



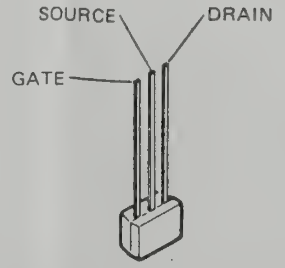
Viewed from solder side



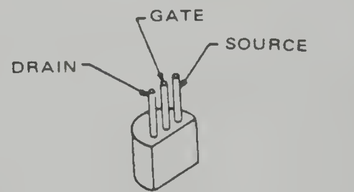
ND487C1-3R
ND487C2-3R



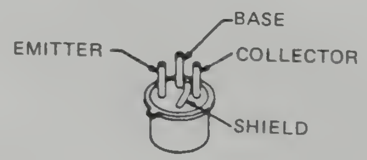
3SK73Y



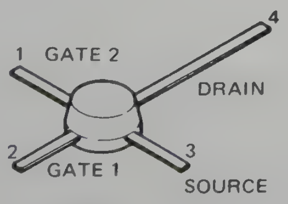
2SK241Y



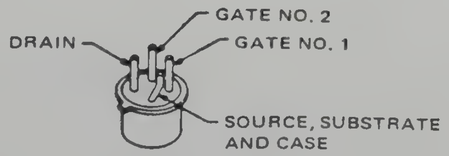
2SK125



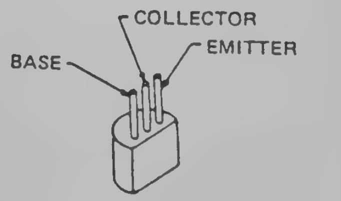
2SC1426



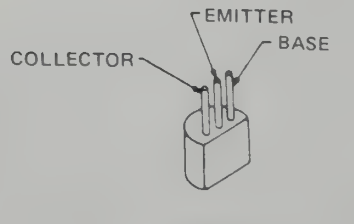
3SK121



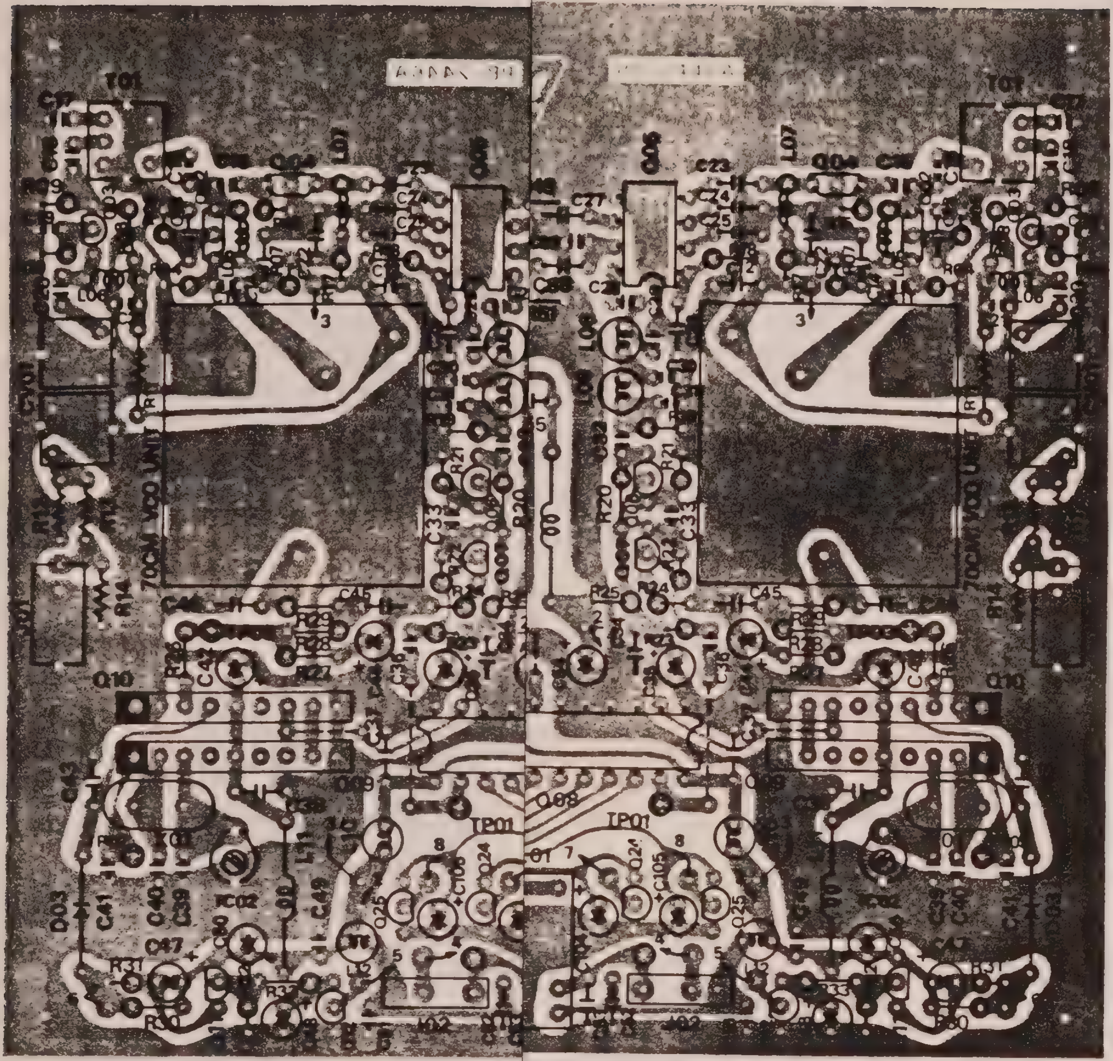
3SK51-03



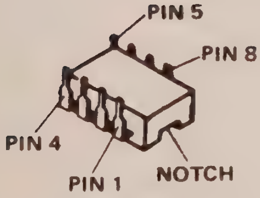
2SA733AQ
2SC460B



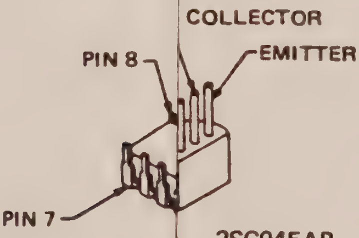
2SC2407



Viewed from solder side

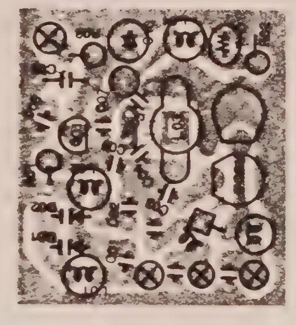


SN16913P

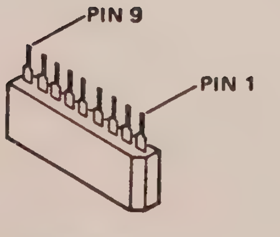


2SC945AP
2SD892Q

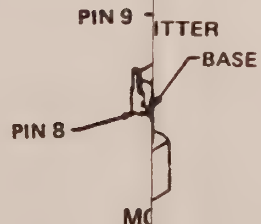
MC14



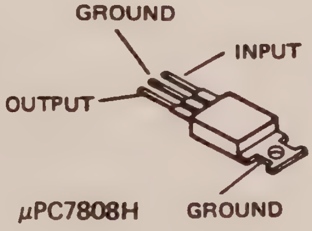
VCO UNIT



TC5081AP
TC5082P

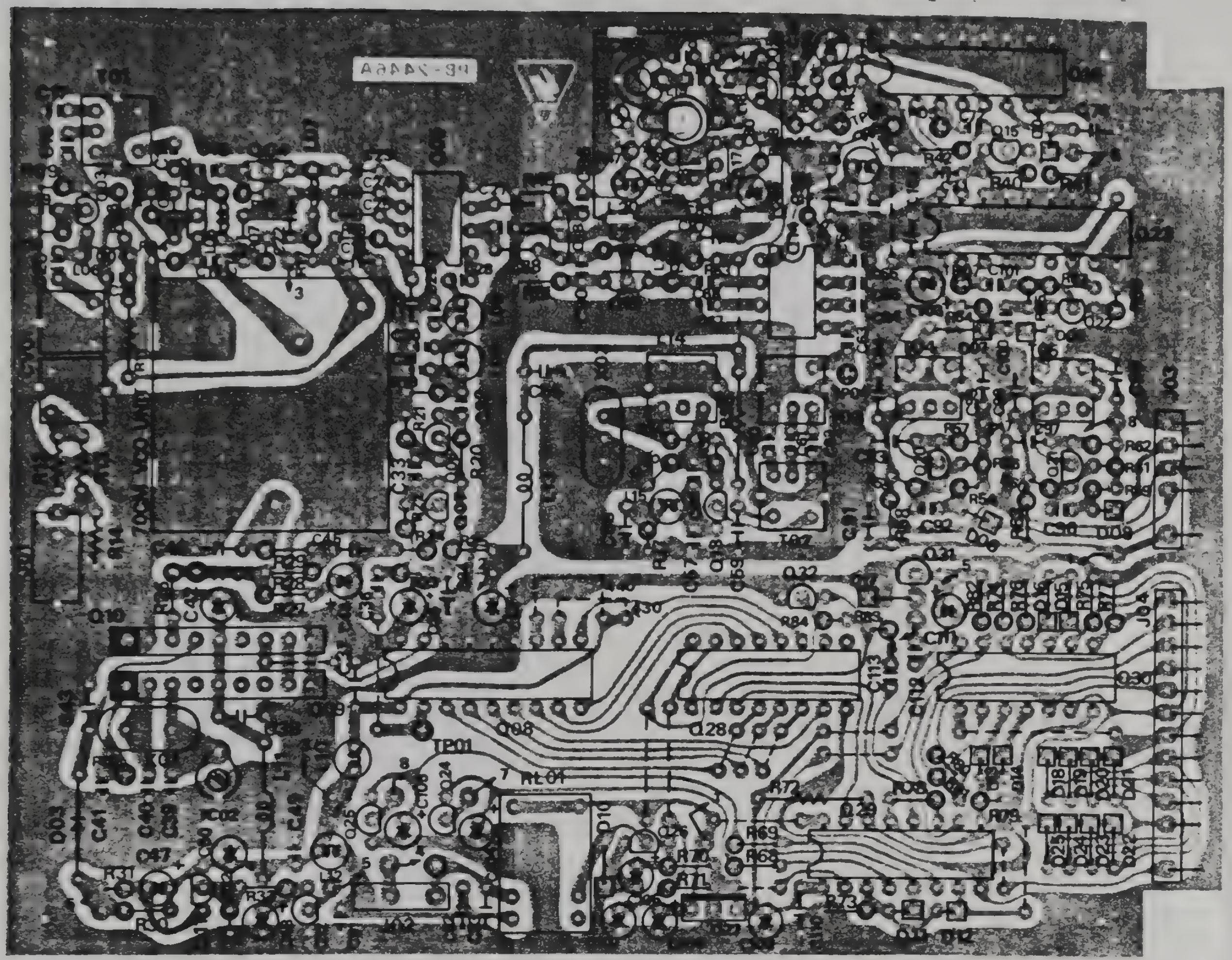


MC
MC
MC26

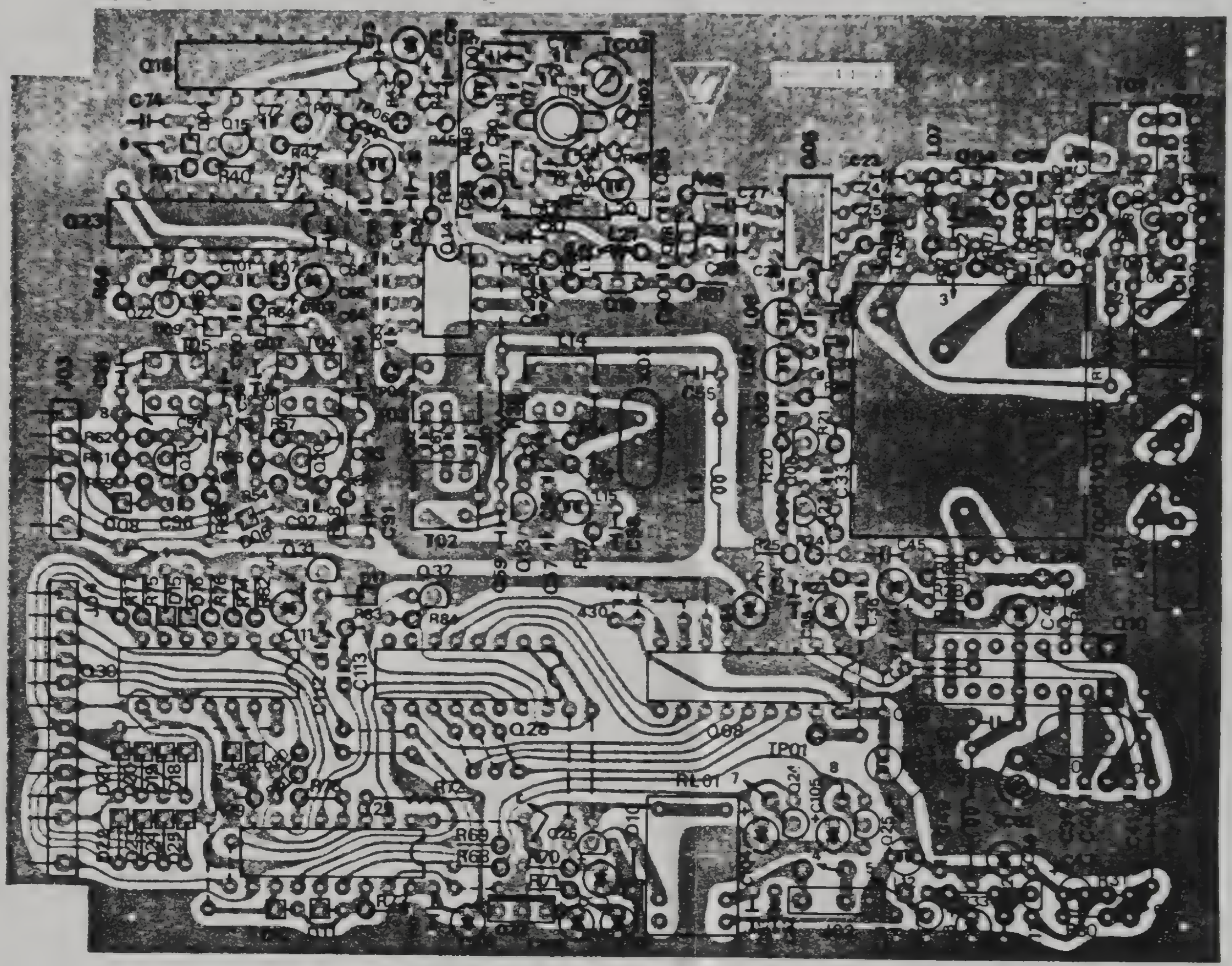


μPC7808H

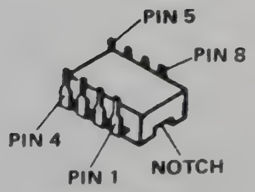
430 AND 440 MHz MODULES: PLL UNIT PARTS LAYOUT



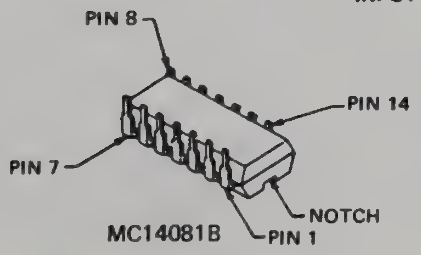
Viewed from component side



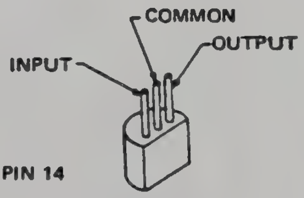
Viewed from solder side



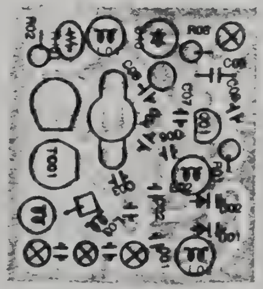
SN16913P



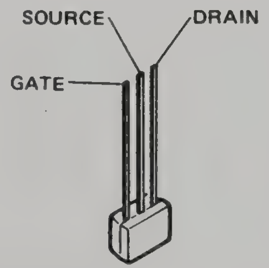
MC14081B



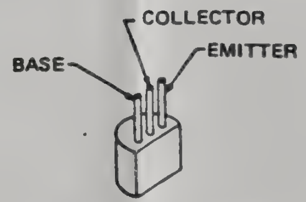
µPC 78L05



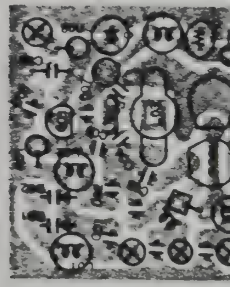
VCO UNIT



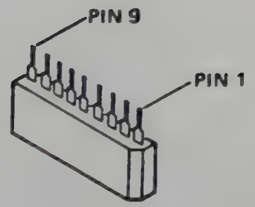
2SK241Y



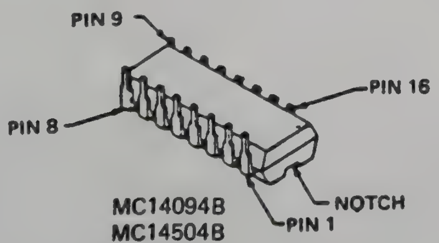
2SA733AQ 2SC945AP
2SC460B 2SD892Q



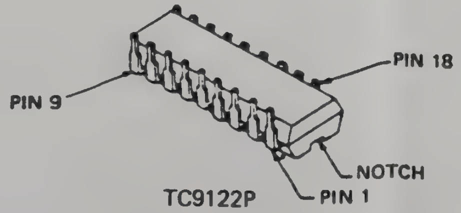
VCO UNIT



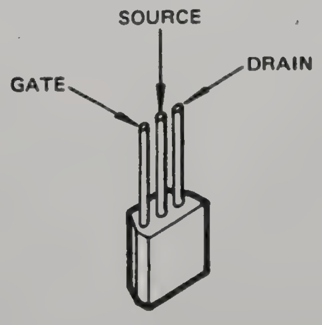
TC5081AP
TC5082P



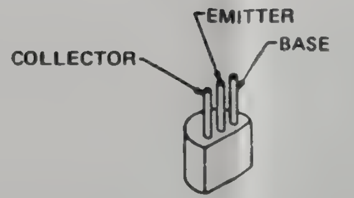
MC14094B
MC14504B
MC145143P



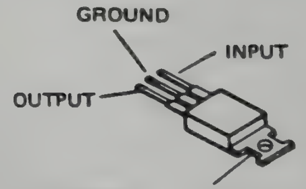
TC9122P



2SK192A-GR

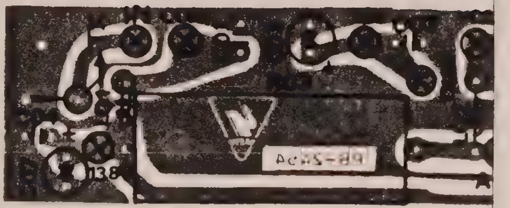


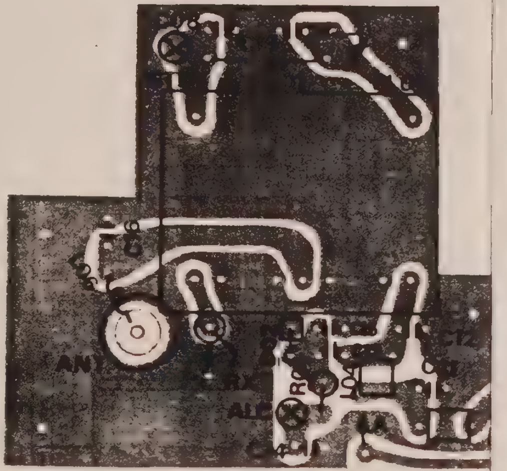
2SC2026

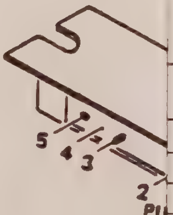


µPC7808H

E CHARTS



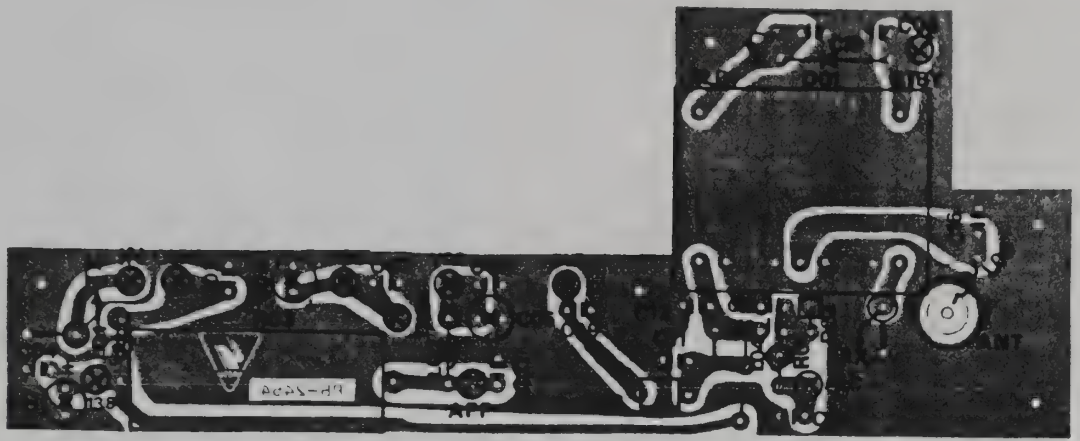




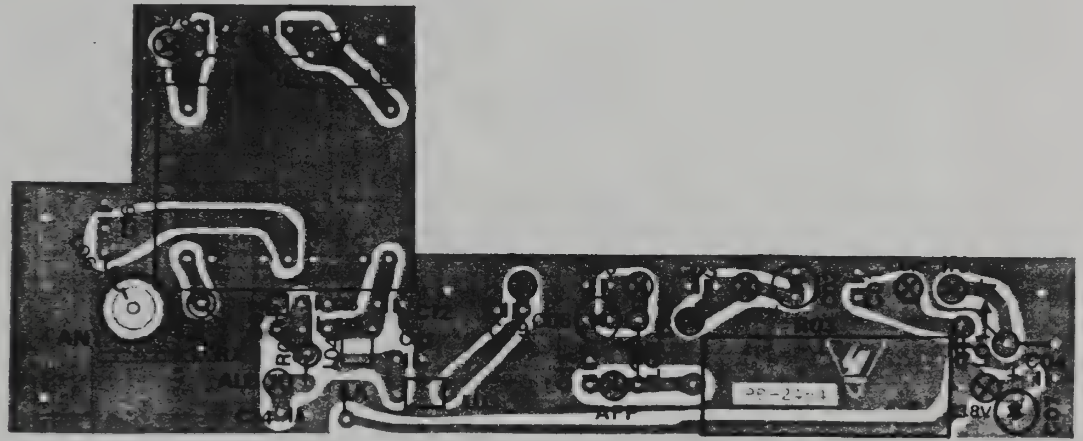
S-AU

12	13	14	15	16	17	18	REMARKS
0	0	0	0	0	0.4	0	
0	0	0	0	0			
0	0	0	0	0	0.4	0	
0	0	0	5.1	7.6			
0	0	4.9	8.1	8.1			
0	4.2	4.9					
							TX

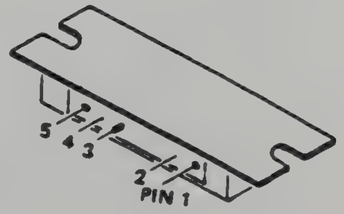
430 AND 440 MHz MODULES: PA UNIT PARTS LAYOUT AND VOLTAGE CHARTS



Viewed from component side



Viewed from solder side

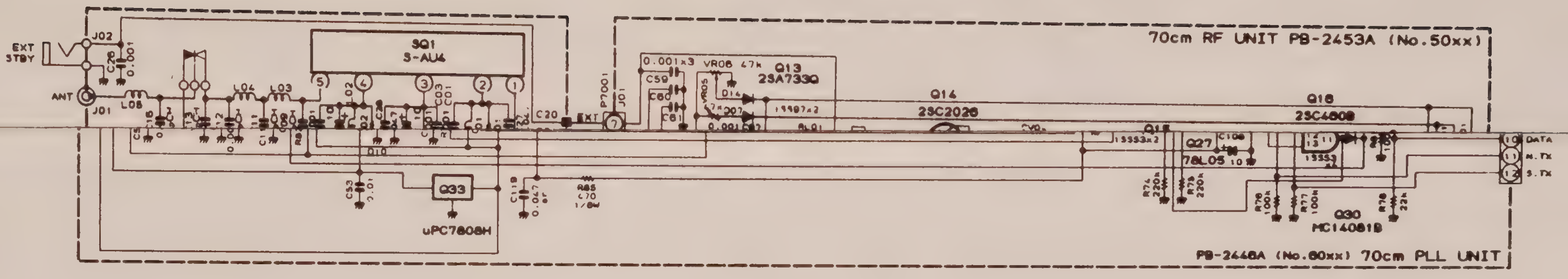


S-AU4

430 MHz MODULE VOLTAGE CHART (DC VOLTS)

	E(S)		C(D)		B(G1)		(G2)		REMARKS
	R	T	R	T	R	T	R	T	
Q5001	1.6		8.1		0		1.6		
Q5002	1.4		8.1		0				
Q5004	1.3		7.8		1.5		0		
Q5005	0.4		7.9		0		0.4		
Q5006		0.6		7.9		0			
Q5007		0.6		7.9		0			
Q5008		1.4		7.3		1.4		3.9	
Q5010		1.4		8.0		0			
Q5011		0		8.0		0.7			
Q5012		0		13.7		0.7			
Q5013	13.7		0		13.2				
Q5014	0		7.3		0.7				
Q5015	7.8		3.0		3.7				
Q5016	7.8		0.9		1.6				
Q6001	0.7		7.8		0				
Q6002	0.2		7.9		0				
Q6003	1.3		8.0		1.8				
Q6004	0		7.6		0				
Q6006	5.4		7.5		5.8				
Q6007	0.4		3.6		1.0				
Q6011	8.1		0		7.9				
Q6012	0		1.5		0				
Q6013	3.1		7.9		3.7				
Q6015	0.2		3.7		0.9				
Q6017	0.7		7.8		0				
Q6018	0		7.4		0				
Q6019	0		7.3		0				
Q6020	1.1		8.0		1.7				
Q6021	8.1		8.1		8.1				
Q6022	0.4		3.8		1.0				
Q6024	0		0		0.7				
Q6025	0		8.1		0				
Q6026	0		8.0		1.4				
Q6031	0		13.7		0.1				
Q6032	0		0		0.6				

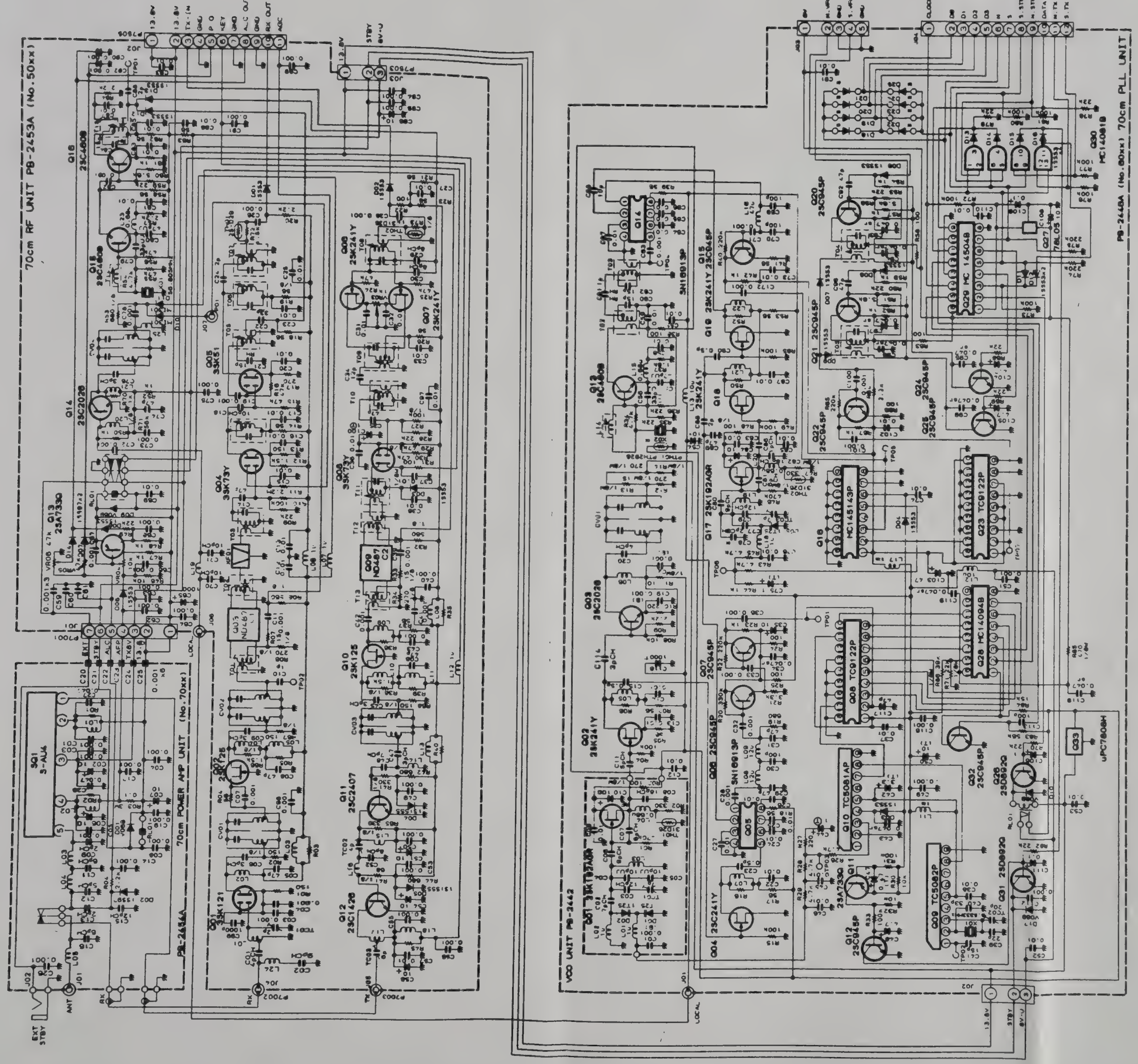
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	REMARKS
Q6005	6.2	3.7	2.6	0	2.6	3.7	3.7	7.5											
Q6008	8.1	3.3	0	0	0	0	0	0	0	0	8.0	0	0	0	0	0	0.4	0	
Q6009	2.3	3.3	3.5	4.0	8.0	4.0	4.0	4.0	0										
Q6010	0	2.2	8.0	8.0	8.0	0.4	4.0	4.0	0										
Q6014	6.0	3.6	2.6	0	2.6	3.7	3.7	7.4											
Q6016	7.8	0.4	4.1	4.1	4.4	7.8	0	0	0	0	0	0	0	0	0	0			
Q6023	7.8	3.2	0	7.8	7.8	0	7.8	0	0	7.8	0	0	0	0	0	0	0.4	0	
Q6027	4.9	0	8.1																
Q6028	0	0	8.1	0	0	0	0	0	0	0	0	0	0	0	5.1	7.6			
Q6029	4.9	8.1	3.7	8.0	4.2	0	0.1	0	0	0	0	0	0	4.9	8.1	8.1			
Q6030	4.2	0	0	0	0	0.1	0	0	0.1	0	0	0	4.2	4.9					
Q6033	13.7	0	8.1																
Q7001	0	13.7	8.1	13.6	0														TX



	F	A	X	B	C
D6018	O	O	O	O	O
D6019	O	O	O	O	O
D6020	X	X	X	X	X
D6021	X	X	O	X	X
D6022	O	O	O	O	O
D6023	X	O	O	O	X
D6024	O	X	X	O	X
D6025	O	X	X	O	O

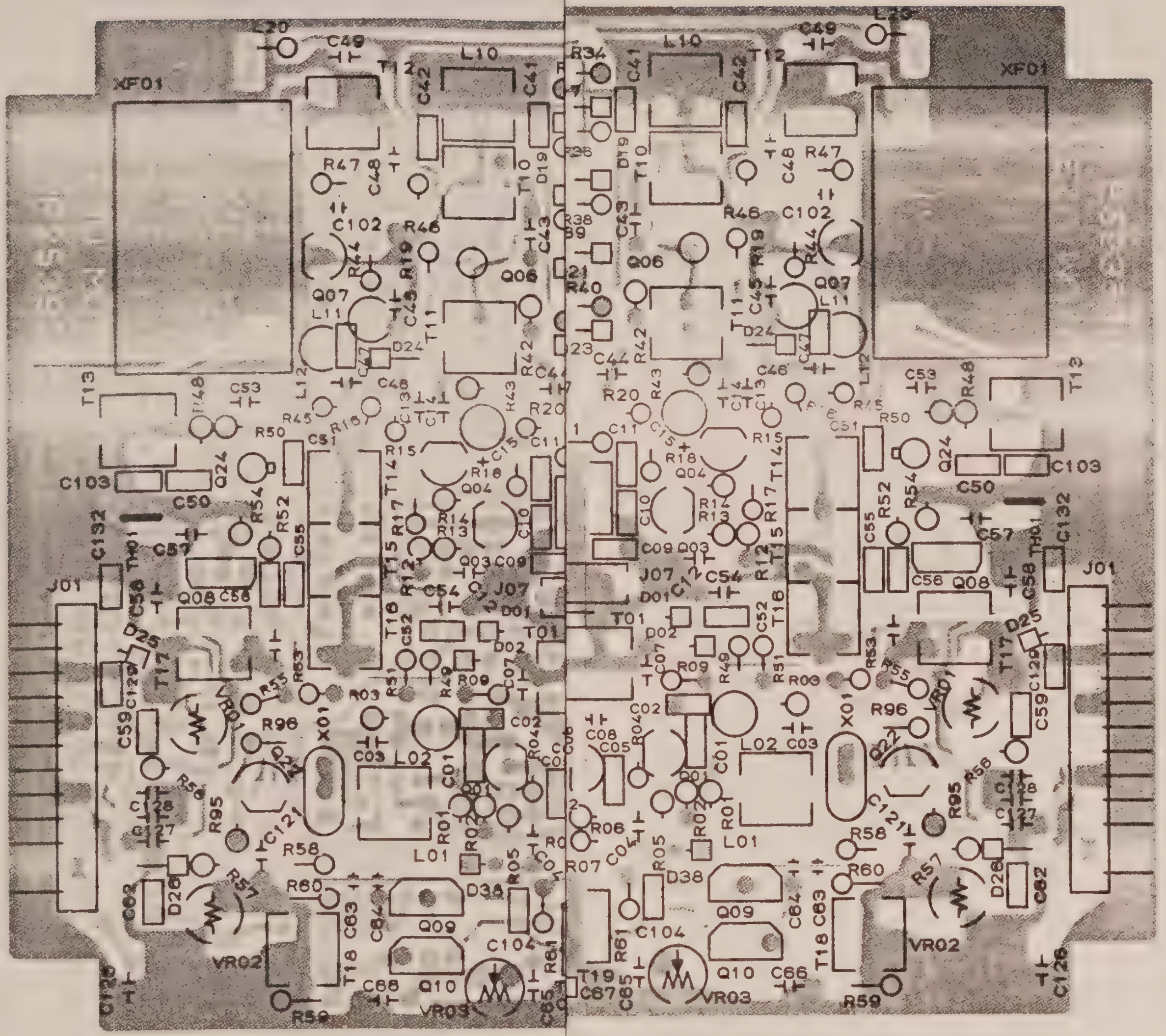
	F	A	X	B	C
X6002	57.4333	57.4333	59.1000	57.4333	57.4333(MHz)
C6078	8pRH	8pRH	7pRH	8pRH	8pRH

430 AND 440 MHz MODULES SCHEMATIC DIAGRAM

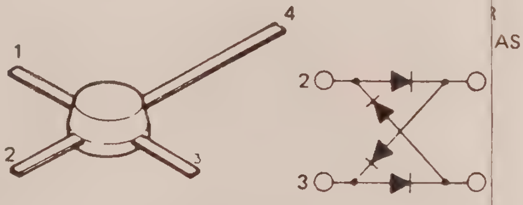

70cm RF UNIT PB-2453A (No.50xx)
70cm POWER AMP UNIT (No.70xx) PB-2454A
VCO UNIT PB-2442
PB-2440A (No.60xx) 70cm PLL UNIT
EXT STBY
ANT
RX
TX
LOCAL
13.8V
STBY
8V-U

	F	A	X	B	C
D6018	O	O	O	O	O
D6019	O	O	O	O	O
D6020	X	X	X	X	X
D6021	X	X	O	X	X
D6022	O	O	O	O	O
D6023	X	O	O	O	X
D6024	O	X	X	O	X
D6025	O	X	X	O	O

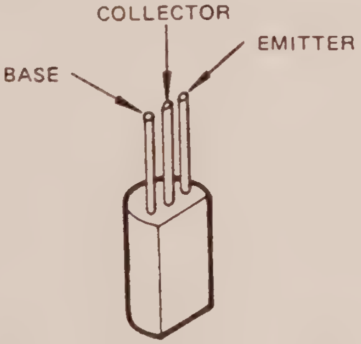
	F	A	X	B	C
X6002	57.4333	57.4333	59.1000	57.4333	57.4333(MHz)
C6078	8pRH	8pRH	7pRH	8pRH	8pRH



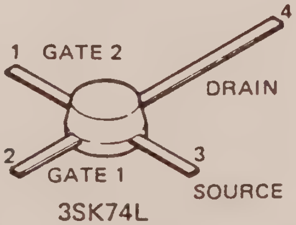
Viewed from solder side



ND487C2-3R

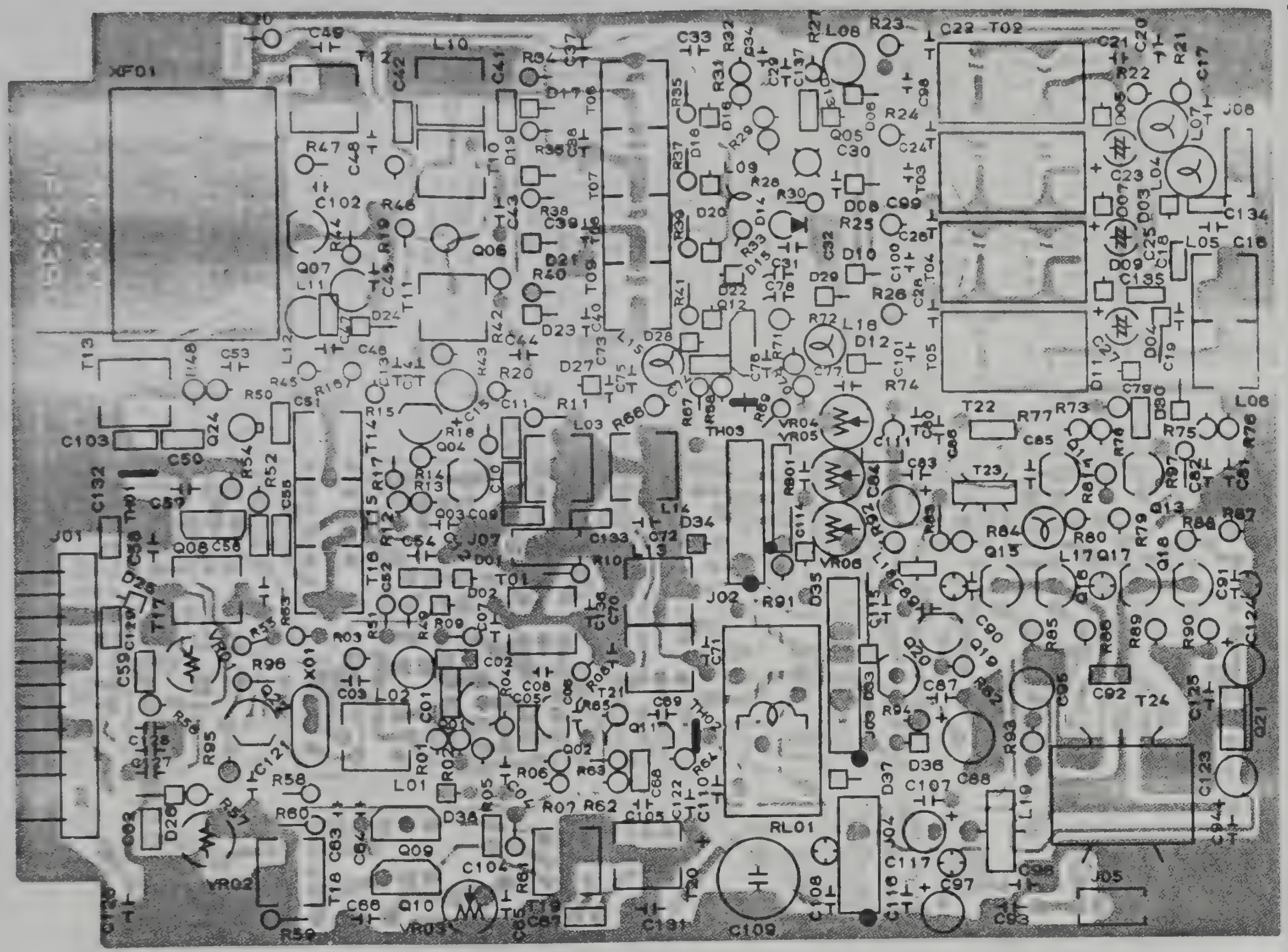


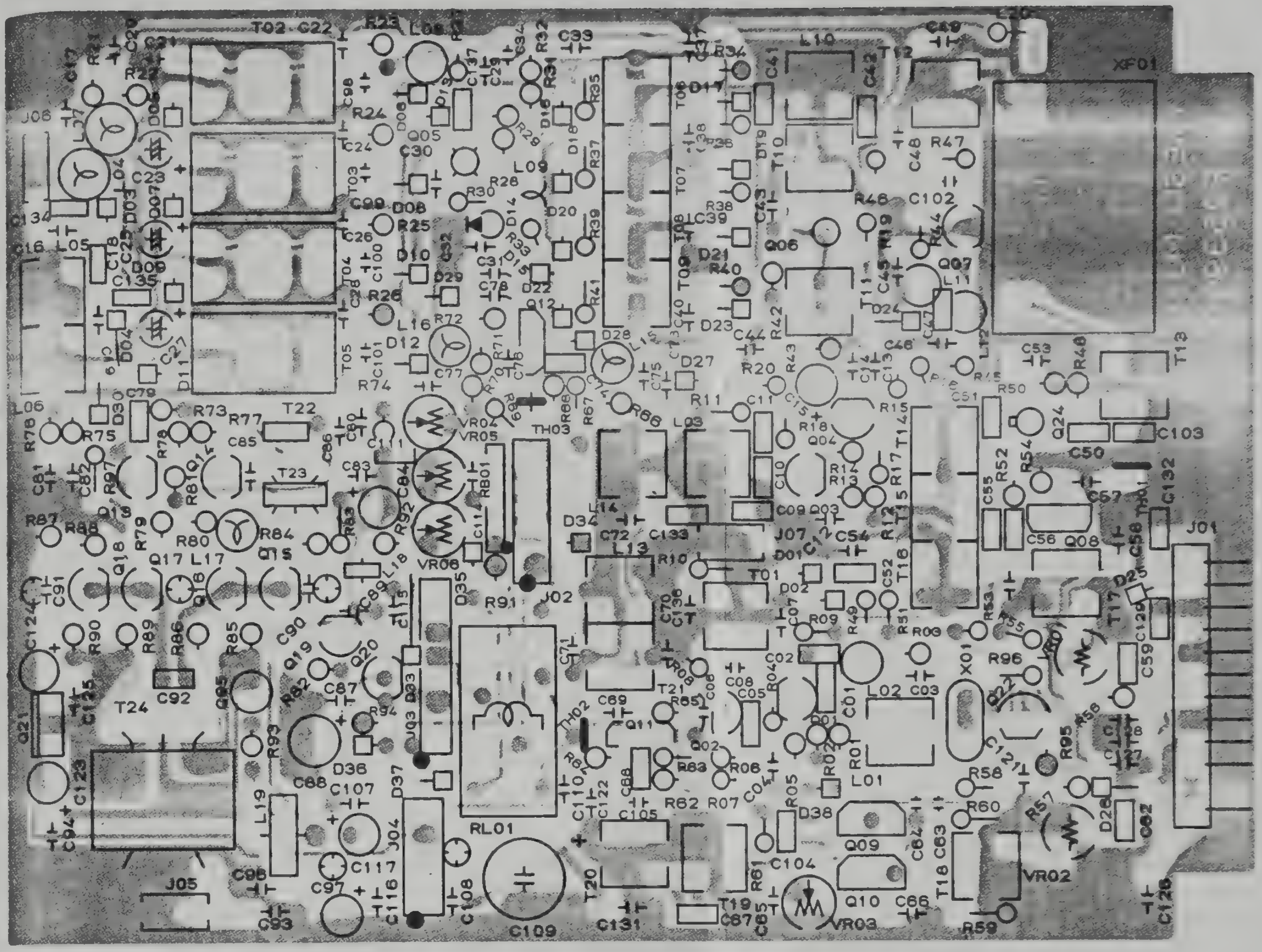
2SC1973

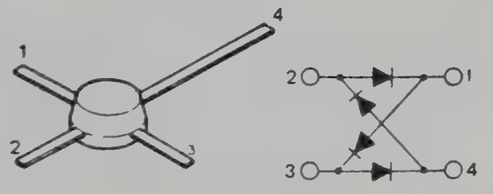


3SK74L

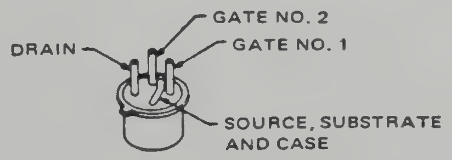
10—15m MODULE: RF UNIT PARTS LAYOUT


Viewed from component side

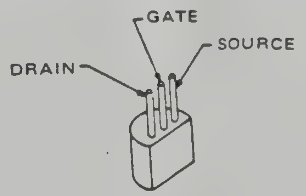

Viewed from solder side



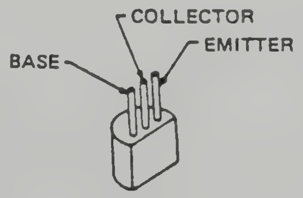
ND487C2-3R



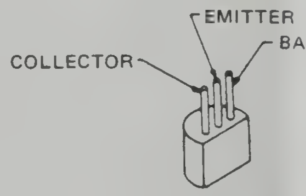
3SK51-03



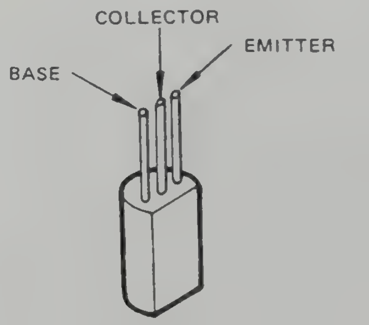
2SK125



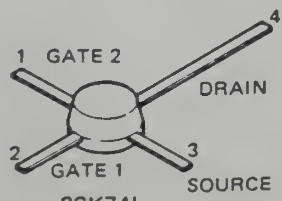
2SA733AQ
2SC460B
2SC535B
2SC1815GR



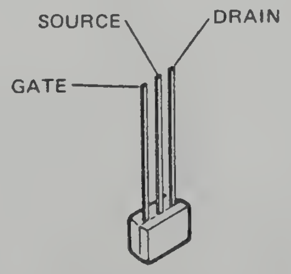
2SC2407



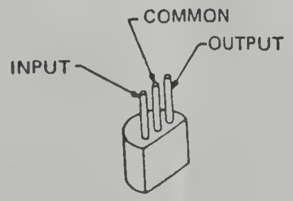
2SC1973



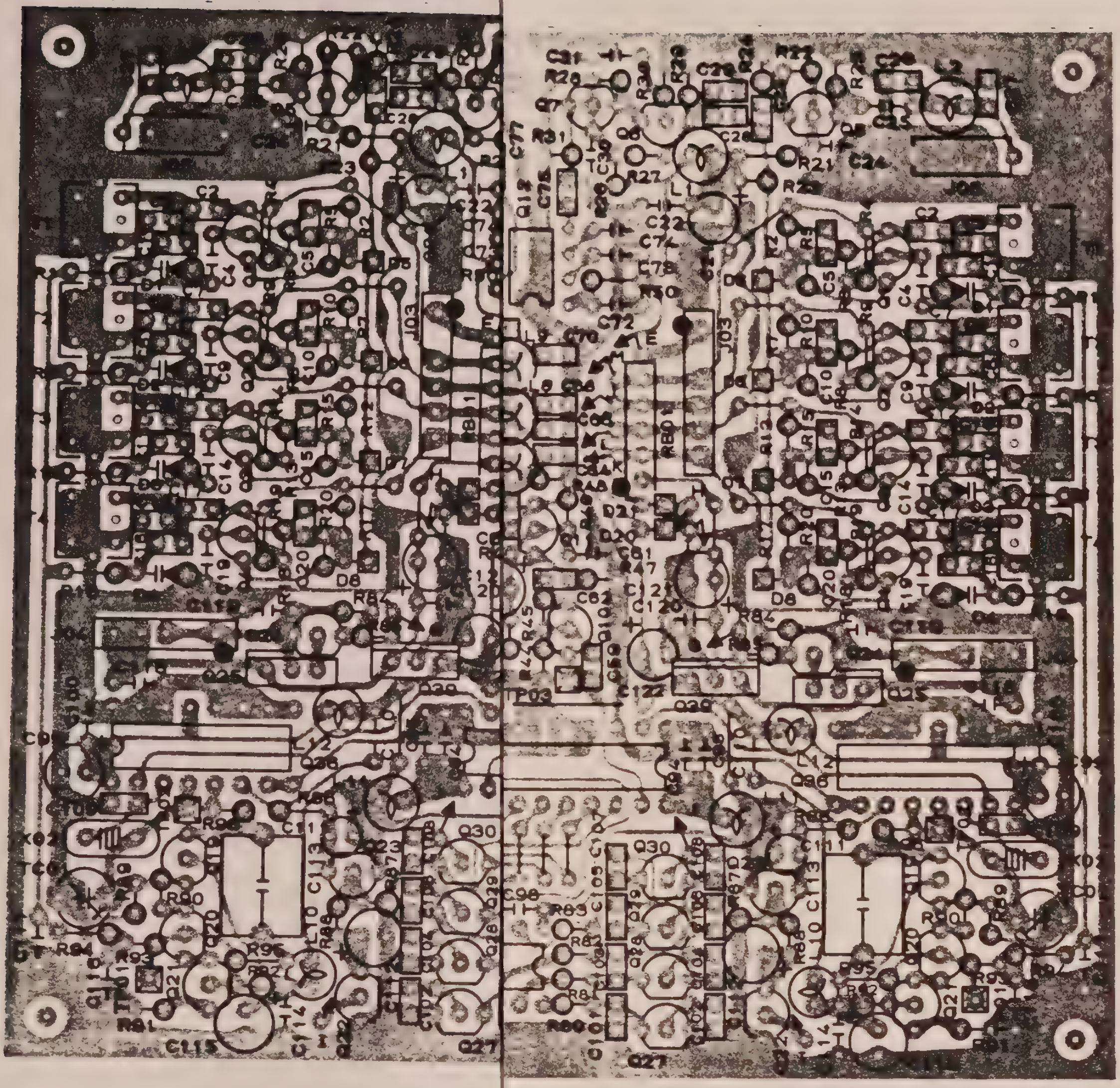
3SK74L



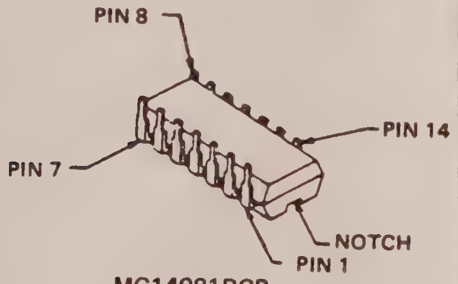
2SK241GR
2SK241Y



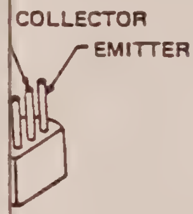
µPC78L08



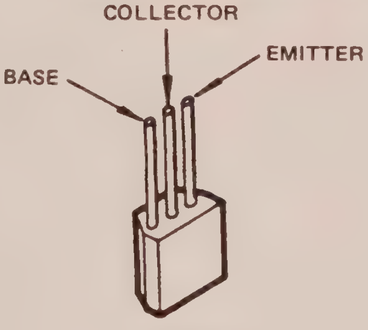
Viewed from solder side



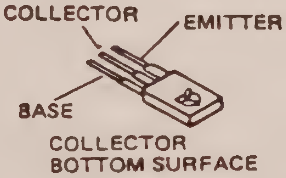
MC14081BCP
SN76514N



A733AQ
A1005K
C460B
C535B
C945AP
C1815GR
C1923R

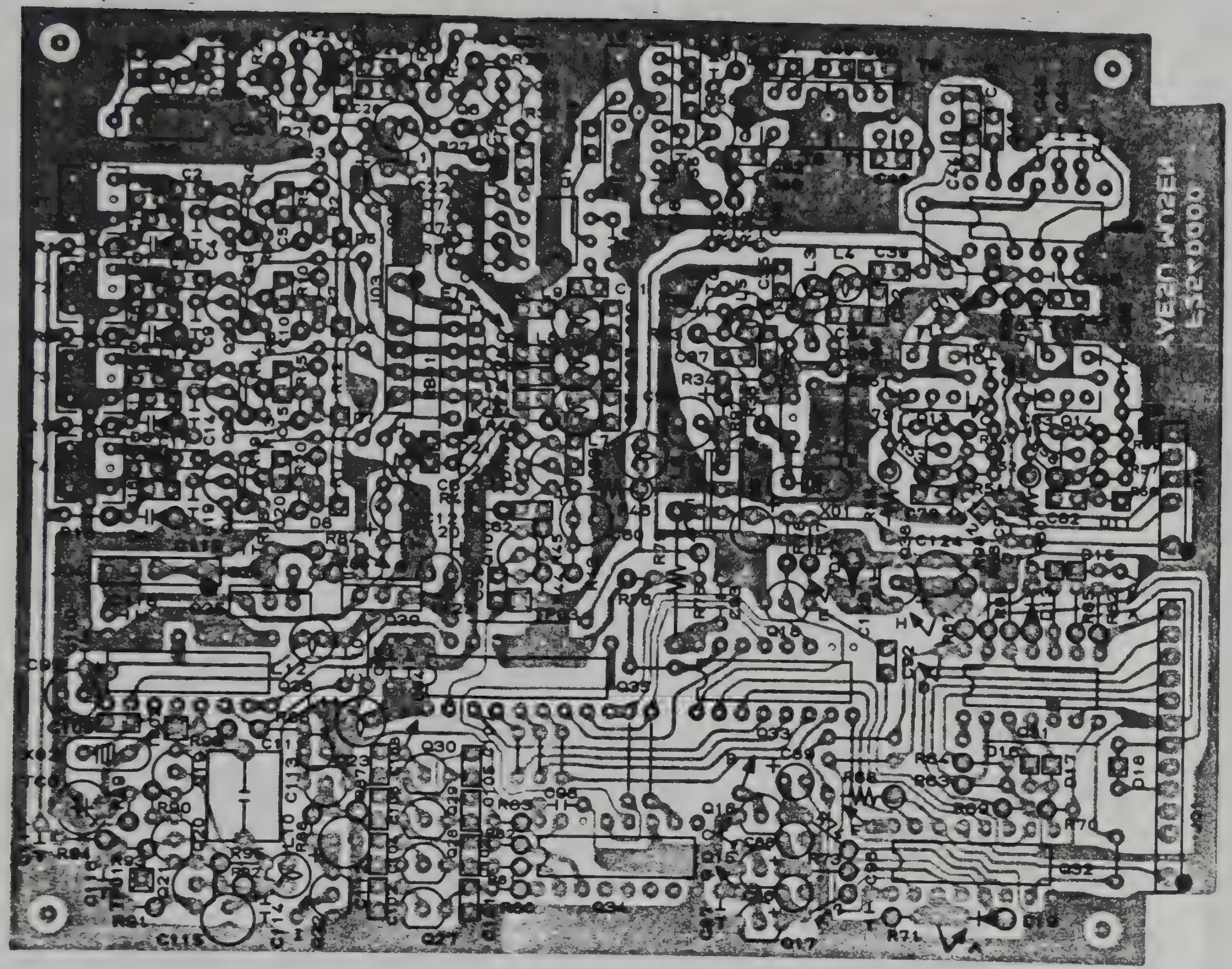


2SC2458Y

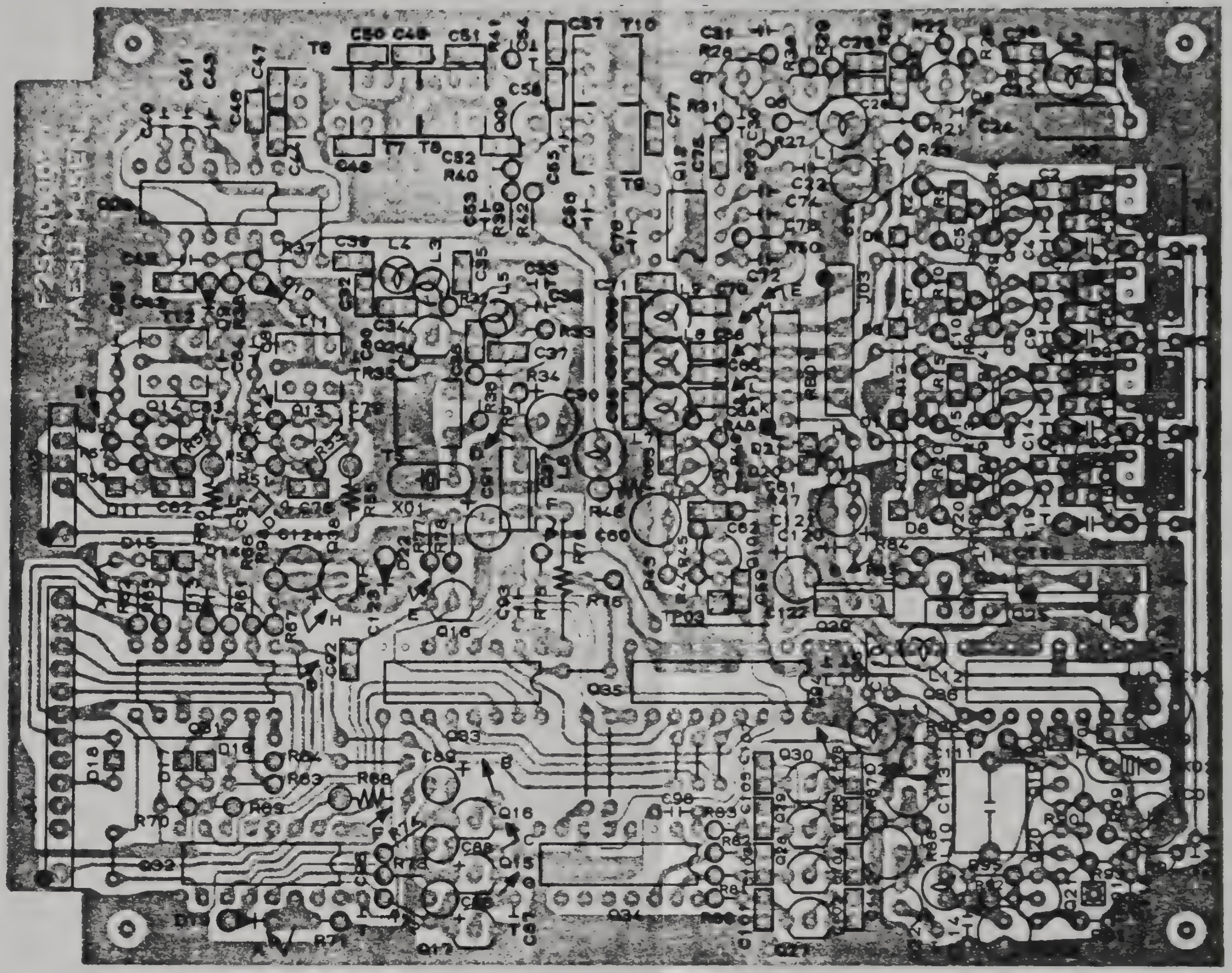


2SC496Y

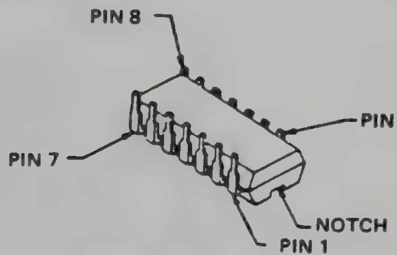
10—15m MODULE: PLL UNIT PARTS LAYOUT



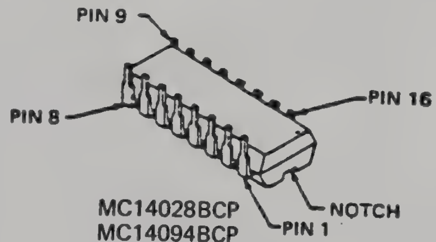
Viewed from component side



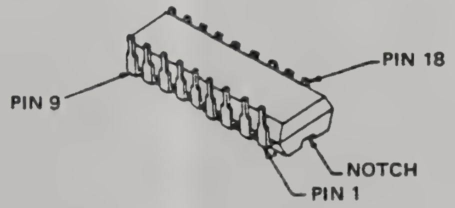
Viewed from solder side



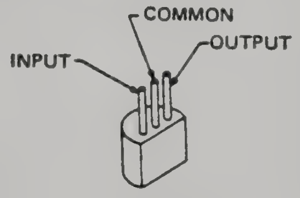
MC14081BCP
SN76514N



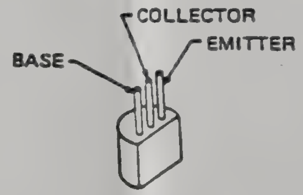
MC14028BCP
MC14094BCP
MC14504BCP
MC145143P



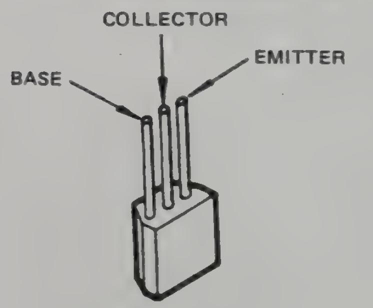
TC9122P



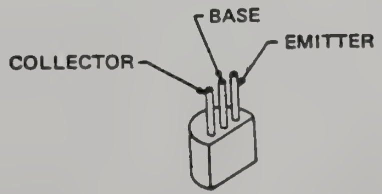
µPC 78L05
µPC78L08



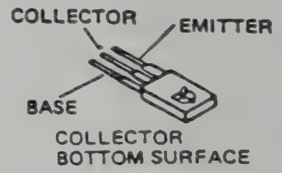
2SA733AQ
2SA1005K
2SC460B
2SC535B
2SC945AP
2SC1815GR
2SC1923R



2SC2458Y

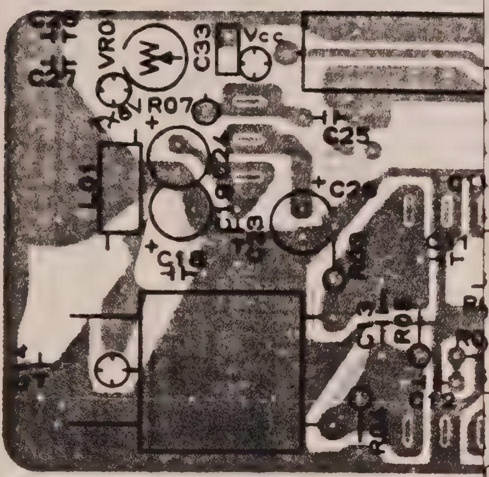


MPSA13

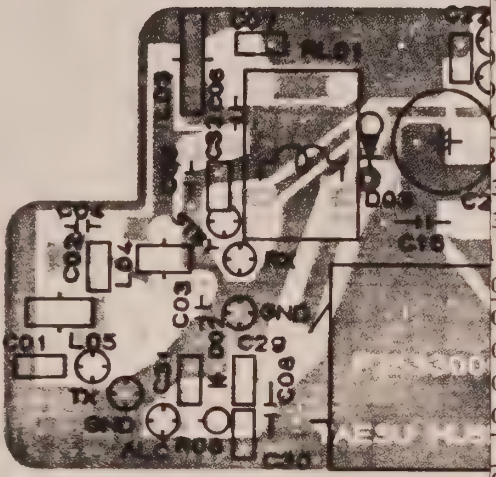


2SC496Y

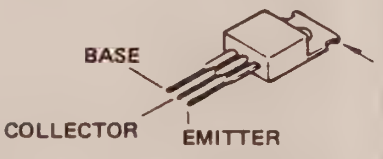
RTS



.3	4.3	0.7	0.7	3.4	3.4			28.0 MHz
.3	4.3	0.7	0.7	3.7	3.7			26.0 MHz
.4	4.4	0.6	0.6	3.7	3.7			24.5 MHz
.3	4.3	0.7	0.7	3.8	3.8			21.0 MHz
.4	4.4	7.2	7.2	5.2	5.2			
.0	1.0	3.6	3.6	1.0	1.0			
.0	3.0	6.6	6.6	3.6	3.6			
.9	0.9	8.0	8.0	1.7	1.7			
.2	0.2	4.5	4.5	0.9	0.9			
.2	3.2	7.8	7.8	3.0	3.0			
.1	1.1	8.0	8.0	1.7	1.7			
.1	1.1	8.0	8.0	1.7	1.7			SAT
0	0	0	0	0.7	0.7			
0	0	0	0	0.7	0.7			SAT
0	0	0	0	0.7	0.7			
0	0	0	0	0.6	0.6			
.4	1.4	8.0	8.0	1.8	1.8			21.0 MHz
.9	0.9	3.6	3.6	1.3	1.3			21.0 MHz
.2	0.2	3.6	3.6	0.9	0.9			21.0 MHz
0	0	0	1.3	0	0			
.2	8.2	0	0	8.0	8.0			21.0 MHz
3.7	13.7	13.7	13.7	13.1	13.1			
3.1	13.1	13.7	13.7	13.7	13.7			
.7	1.7	4.9	4.9	2.4	2.4			
0	0	0	0	0.8	0.8			28.0 MHz
0	0	0	0	0.8	0.8			24.5 MHz
0	0	0	0	0.8	0.8			21.0 MHz
0	0	0	0	0.8	0.8			26.0 MHz
0	0	13.4	0.8	0	1.4			
0	0.1	0	8.0	0	0.6			SSB
0	0	13.8	13.8	0	0.1			
0	0	13.8	13.8	0	0.1			

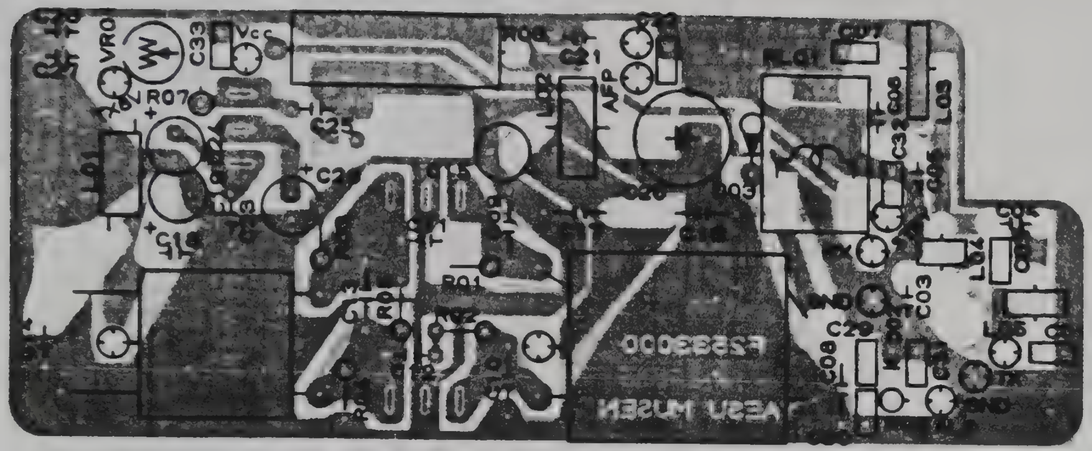


3	14	REMARKS
		TX
.9	0	

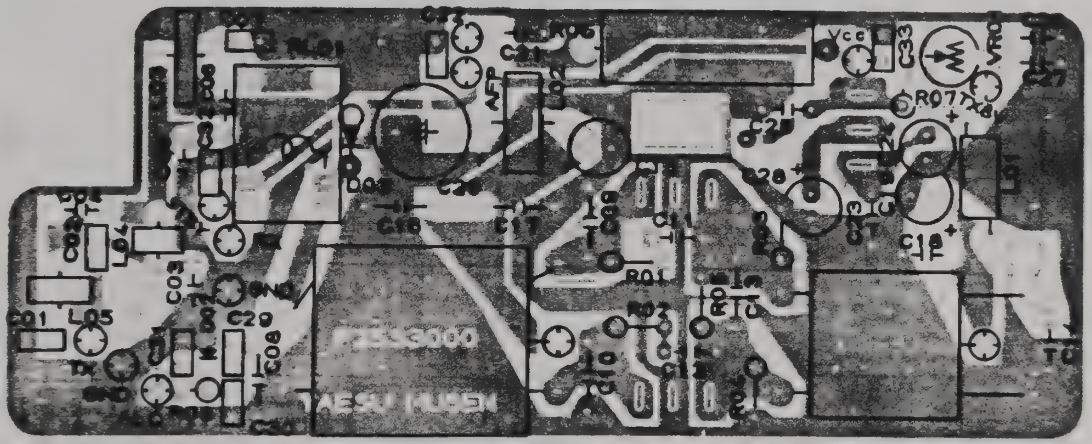


2SC1945

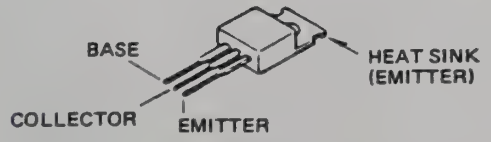
10–15m MODULE: PA UNIT PARTS LAYOUT AND VOLTAGE CHARTS



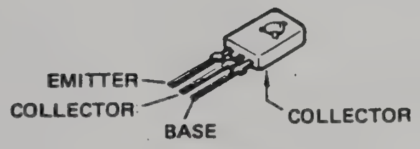
Viewed from component side



Viewed from solder side



2SC1945

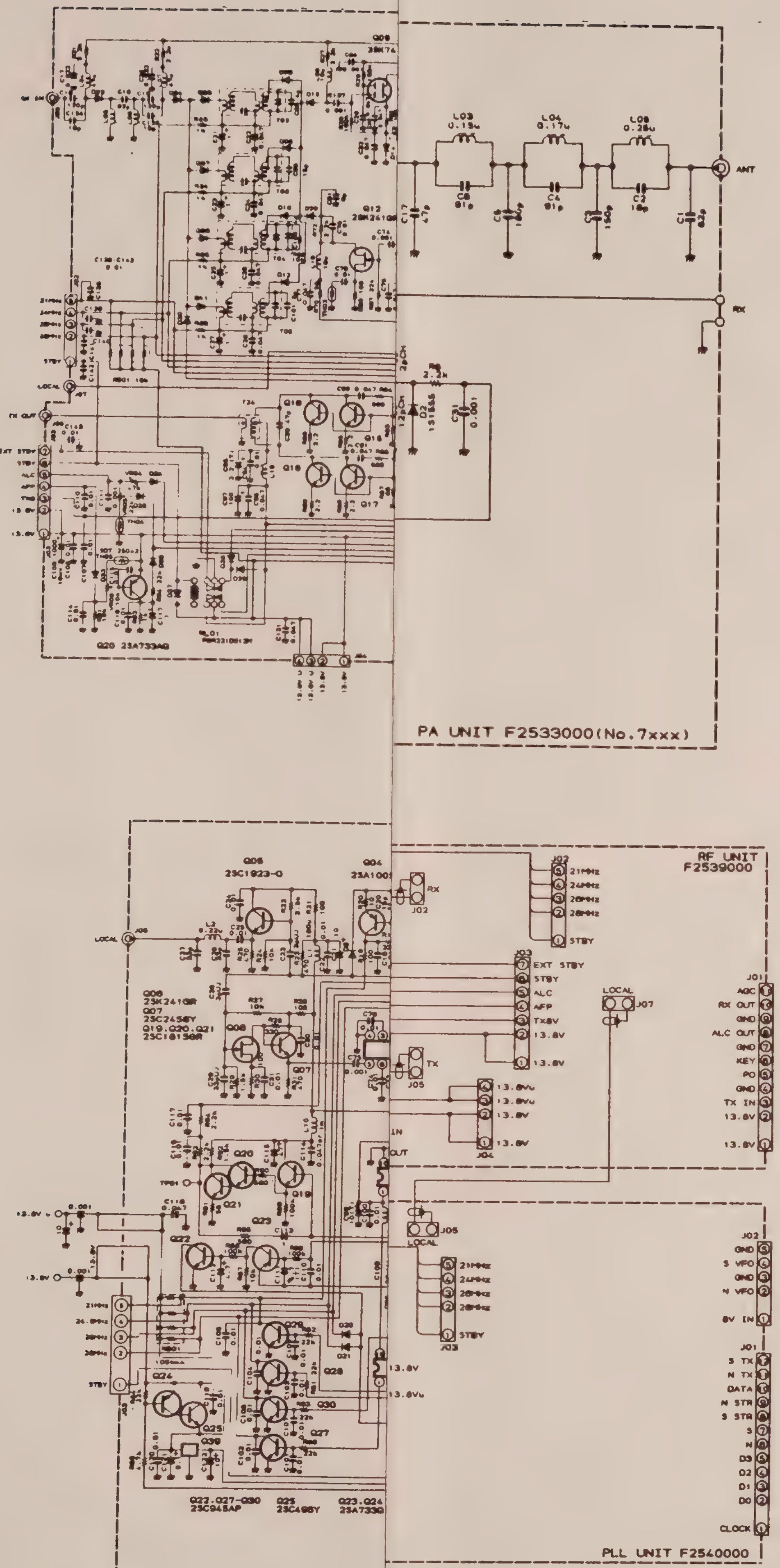


2SD882Q

10–15m MODULE VOLTAGE CHART (DC VOLTS)

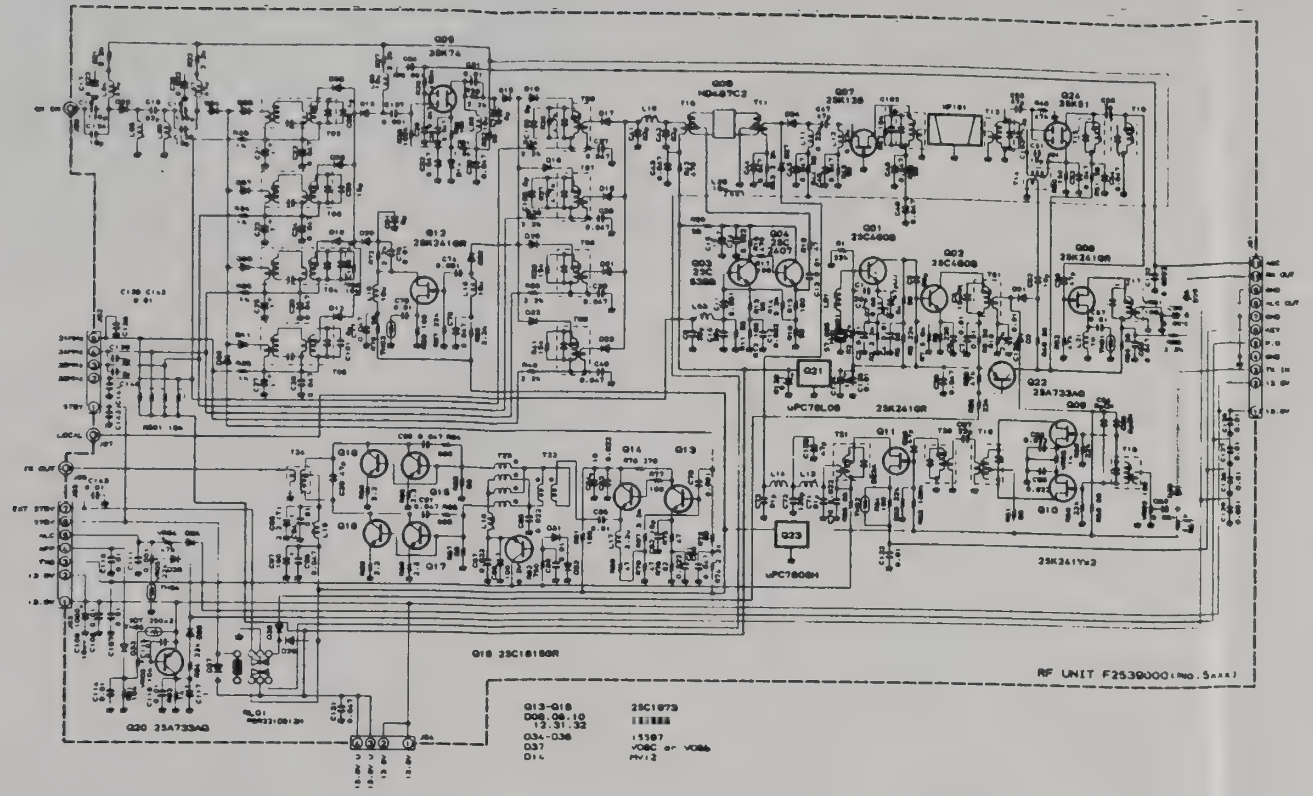
	E(S)		C(D)		B(G1)		(G2)		REMARKS
	R	T	R	T	R	T	R	T	
Q5001	3.3	3.3	8.0	8.0	3.9	3.9			
Q5002	0.8	0.8	7.9	7.9	1.5	1.5			
Q5003	1.8	1.8	6.9	6.9	1.1	1.1			
Q5004	6.8	6.8	10.4	10.4	6.1	6.1			
Q5005	1.8	0	12.3	0	1.4	0	2.3	2.3	
Q5007	1.5	0	11.6	0	0	0			
Q0008	0	0	7.4	0	0	0			
Q5009	0	0.6	0	7.8	0	0			
Q5010	0	0.6	0	7.8	0	0			
Q5011	0	1.4	0	4.4	0	1.4			
Q5012	0	0	0	12.4	0	0.6			
Q5013	0	2.1	0	8.3	0	2.8			
Q5014	0	1.2	0	12.9	0	8.2			
Q5015	0	0	0	12.9	0	0.7			
Q5016	0	0	0	12.9	0	0.7			
Q5017	0	0	0	12.9	0	0.7			
Q5018	0	0	0	12.9	0	0.7			
Q5019	0	0.7	0	8.1	0	1.4			
Q5020	13.8	13.8	0	0	13.8	13.8			
Q5022	8.1	8.1	8.0	0	7.4	8.1			
Q6001	4.3	4.3	0.7	0.7	3.4	3.4			28.0 MHz
Q6002	4.3	4.3	0.7	0.7	3.7	3.7			26.0 MHz
Q6003	4.4	4.4	0.6	0.6	3.7	3.7			24.5 MHz
Q6004	4.3	4.3	0.7	0.7	3.8	3.8			21.0 MHz
Q6005	4.4	4.4	7.2	7.2	5.2	5.2			
Q6006	1.0	1.0	3.6	3.6	1.0	1.0			
Q6007	3.0	3.0	6.6	6.6	3.6	3.6			
Q6009	0.9	0.9	8.0	8.0	1.7	1.7			
Q6010	0.2	0.2	4.5	4.5	0.9	0.9			
Q6011	3.2	3.2	7.8	7.8	3.0	3.0			
Q6013	1.1	1.1	8.0	8.0	1.7	1.7			
Q6014	1.1	1.1	8.0	8.0	1.7	1.7			SAT
Q6015	0	0	0	0	0.7	0.7			
Q6016	0	0	0	0	0.7	0.7			SAT
Q6017	0	0	0	0	0.7	0.7			
Q6018	0	0	0	0	0.6	0.6			
Q6019	1.4	1.4	8.0	8.0	1.8	1.8			21.0 MHz
Q6020	0.9	0.9	3.6	3.6	1.3	1.3			21.0 MHz
Q6021	0.2	0.2	3.6	3.6	0.9	0.9			21.0 MHz
Q6022	0	0	0	1.3	0	0			
Q6023	8.2	8.2	0	0	8.0	8.0			21.0 MHz
Q6024	13.7	13.7	13.7	13.7	13.1	13.1			
Q6025	13.1	13.1	13.7	13.7	13.7	13.7			
Q6026	1.7	1.7	4.9	4.9	2.4	2.4			
Q6027	0	0	0	0	0.8	0.8			28.0 MHz
Q6028	0	0	0	0	0.8	0.8			24.5 MHz
Q6029	0	0	0	0	0.8	0.8			21.0 MHz
Q6030	0	0	0	0	0.8	0.8			26.0 MHz
Q6038	0	0	13.4	0.8	0	1.4			
Q7001	0	0.1	0	8.0	0	0.6			SSB
Q7002	0	0	13.8	13.8	0	0.1			
Q7003	0	0	13.8	13.8	0	0.1			

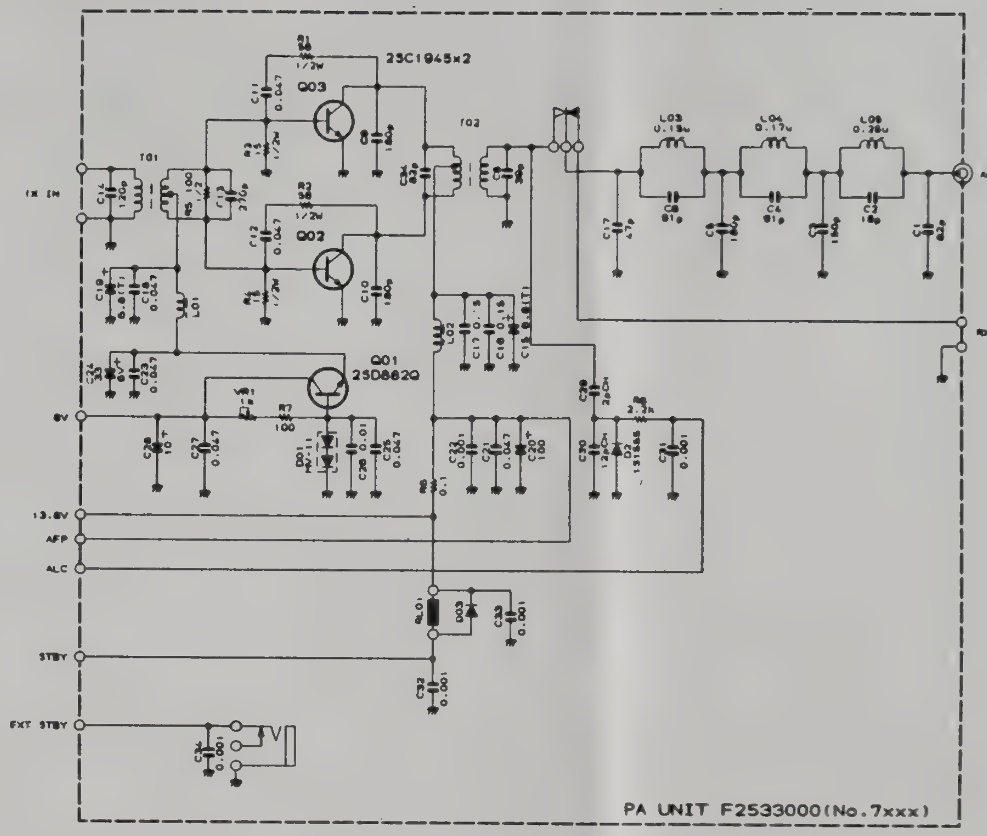
IC	1	2	3	4	5	6	7	8	9	10	11	12	13	14	REMARKS
Q5021	13.0	0	8.1												
Q5023	12.9	0	8.0												TX
Q6008	0	7.8	7.0	4.1	2.3	0	0	0	2.3	4.0	4.0	4.0	6.9	0	
Q6012	6.3	3.8	2.7	0	2.7	3.8	3.8	7.6							
Q6037	8.1	0	5.0												
Q6039	13.1	0	8.2												

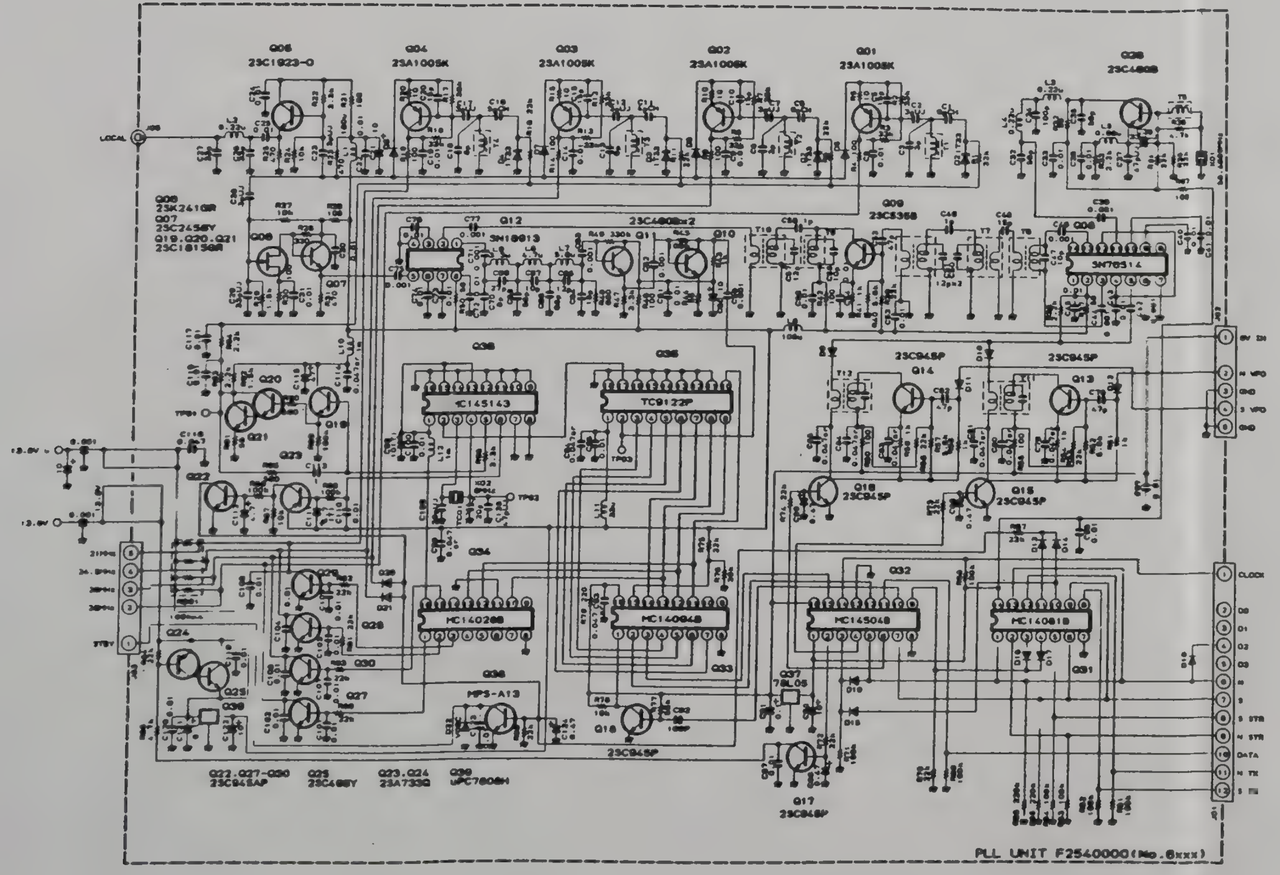


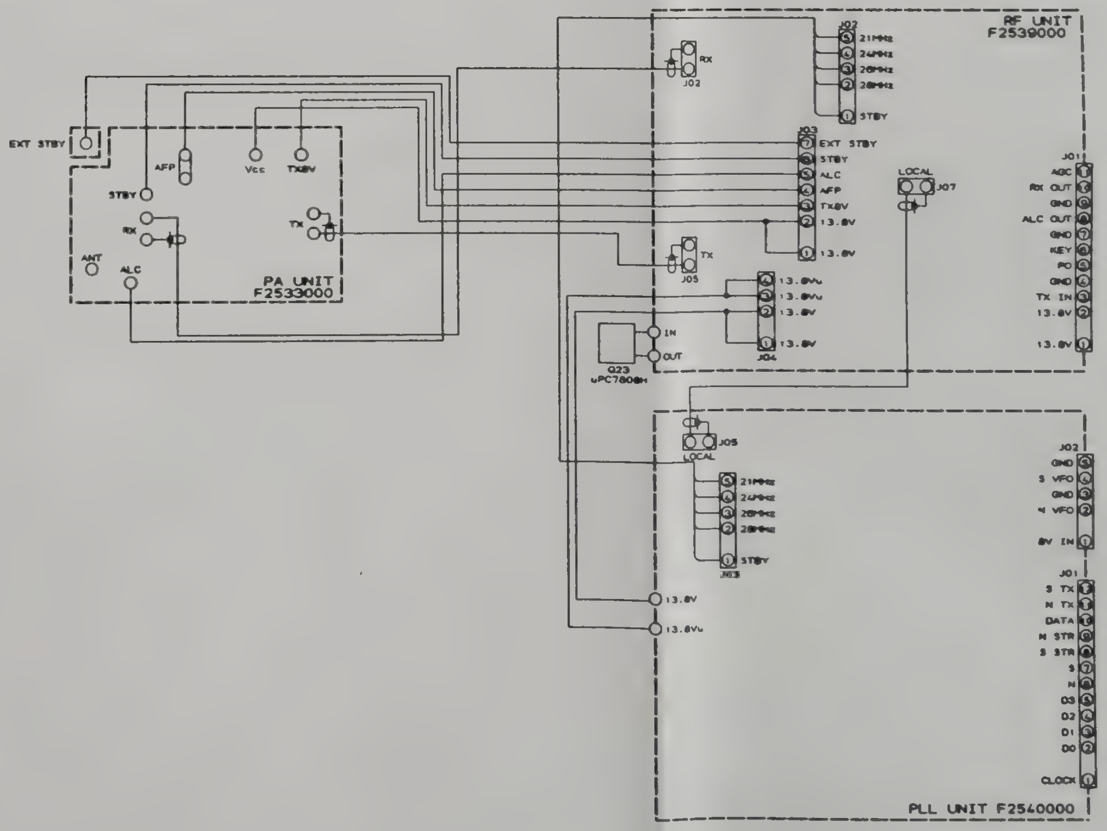
FT726 10-15m UNIT
CONNECTION DIAGRAM

10—15m MODULE SCHEMATIC DIAGRAM

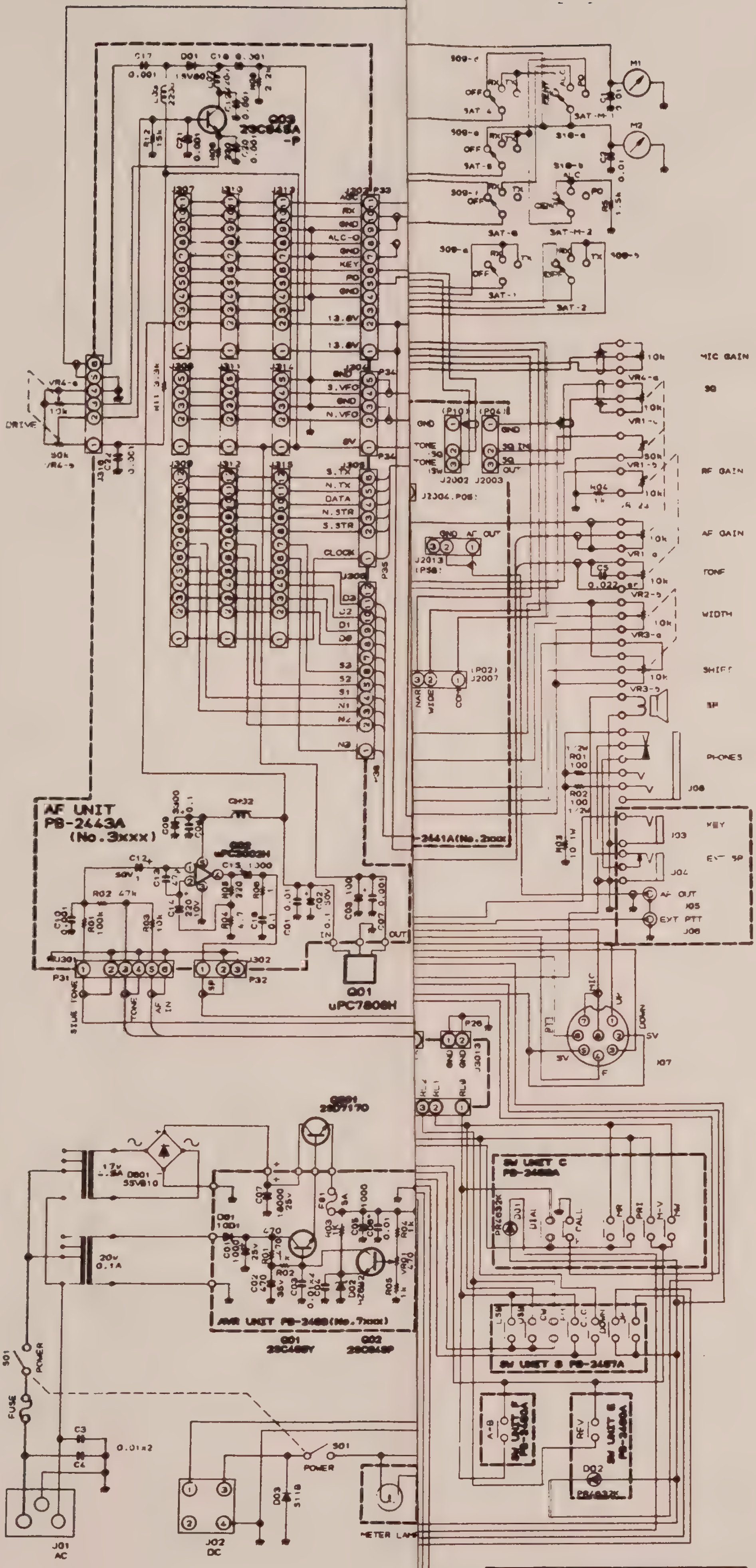






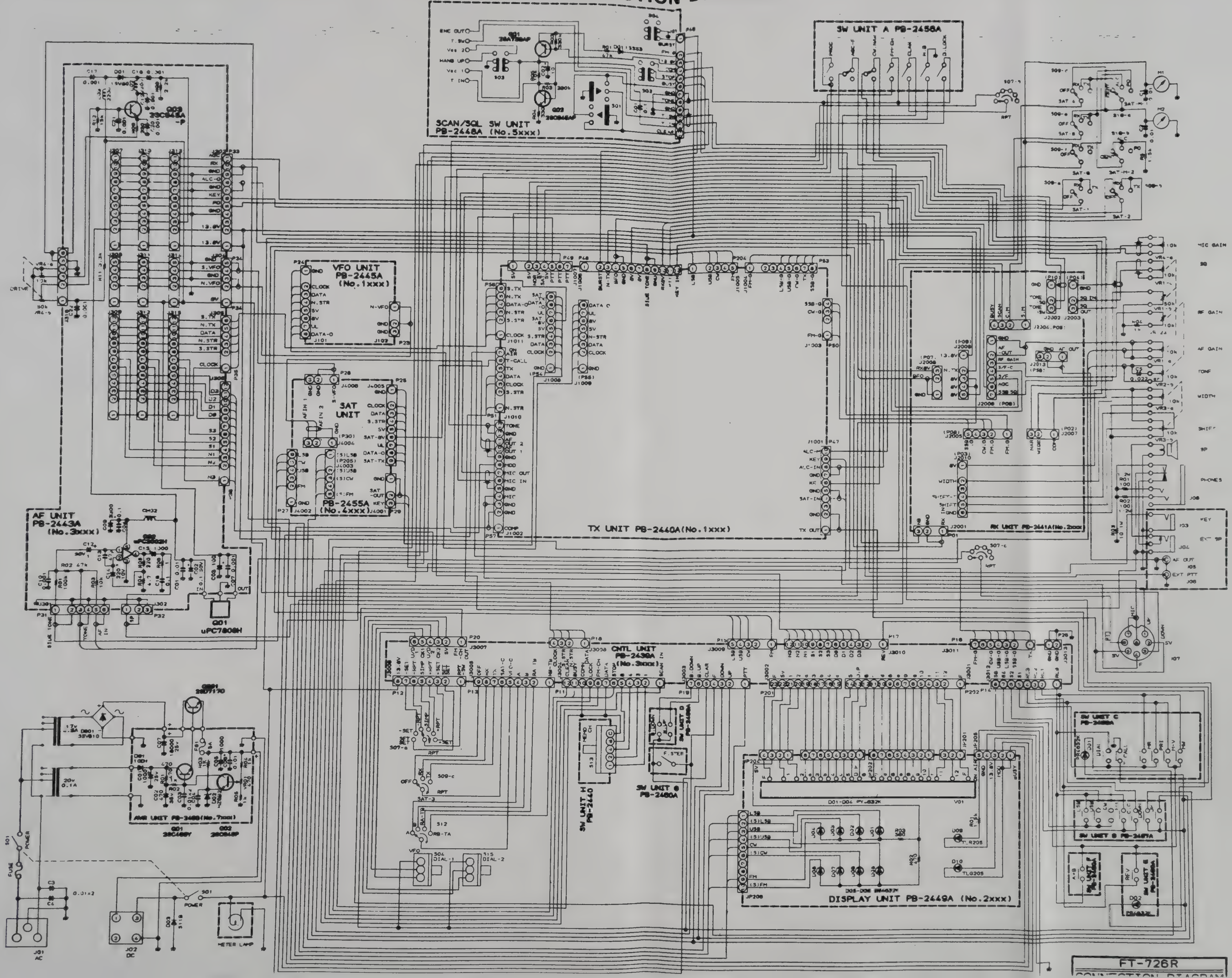


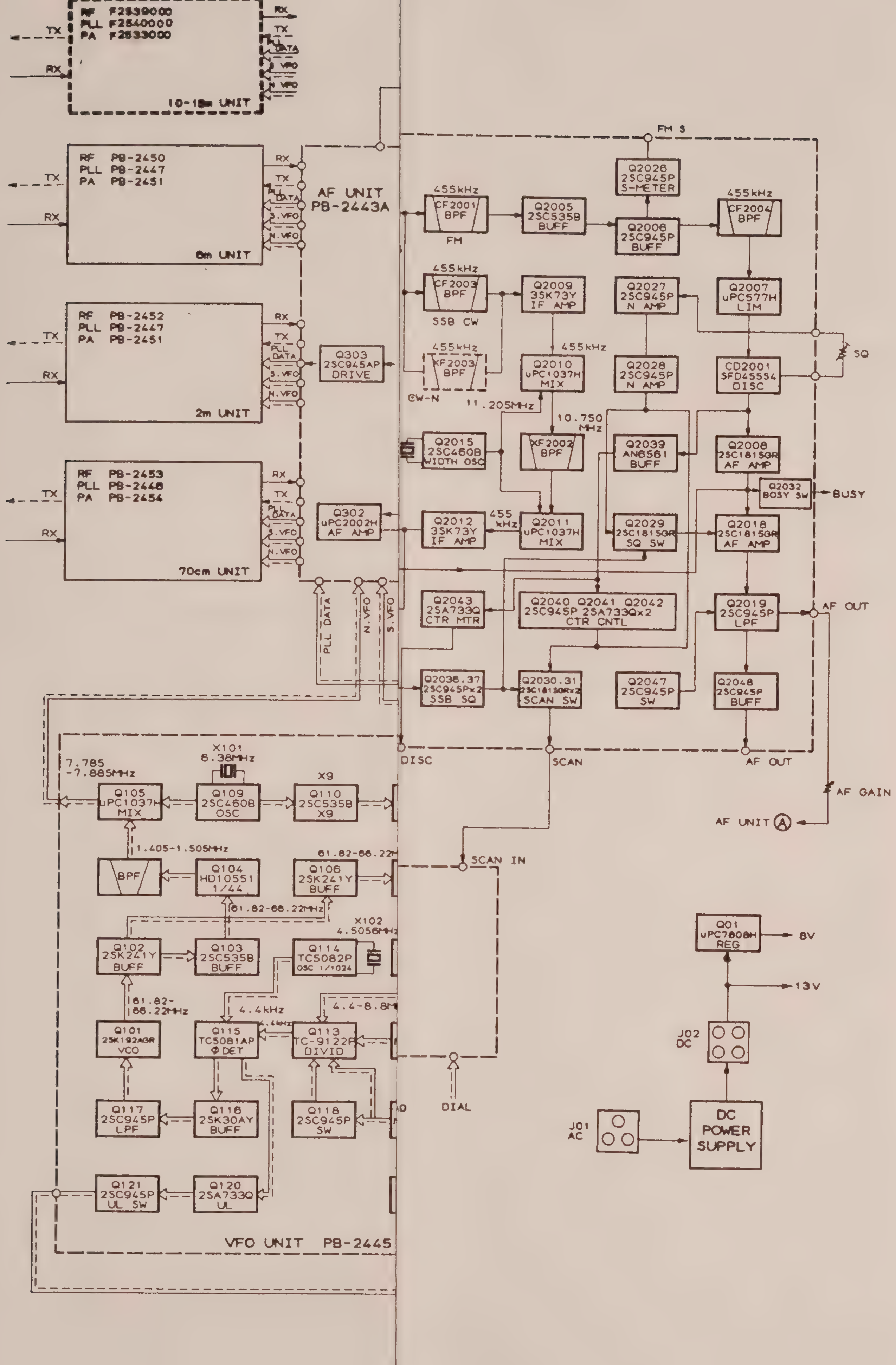
FT726 10-15m UNIT
CONNECTION DIAGRAM


AF UNIT
PB-2443A
(No.3xxx)
Q02
uPC2002H
Q01
uPC7808H
Q03
2SC945A
-P
DRIVE
VR4-b
VR4-a
J201
J202
J203
J204
J205
J206
J207
J208
J209
J211
J212
J213
J214
J215
J301
J302
P31
P32
P33
P34
P35
P36
ALC
RX
GND
ALC-O
KEY
PO
13.8V
S.VFO
N.VFO
8V
S.TX
N.TX
DATA
N.STR
S.STR
CLOCK
D3
D2
D1
D0
S3
S2
S1
N1
N2
N3
SIDE TONE
TONE
AF IN
SP
OUT
IN
PB-2441A(No.2xxx)
J2002
J2003
J2004.P08
J2013
(P58)
AF OUT
J2007
(P02)
NAR
WIDE
COM
TONE SQ
TONE SW
SQ IN
SQ OUT
M1
M2
SAT-M-1
SAT-M-2
SAT-1
SAT-2
SAT-4
SAT-5
SAT-6
OFF
MIC GAIN
SQ
RF GAIN
AF GAIN
TONE
WIDTH
SHIFT
SP
PHONES
J08
KEY
J03
EXT SP
J04
AF OUT
J05
EXT PTT
J06
MIC
UP
DOWN
PTT
SV
F
J07
P26
J3013
RL1
RL2
RL3
Q801
2SD1170
D801
S5VB10
17V
1.5A
20V
0.1A
AVR UNIT PB-2408(No.7xxx)
Q01
2SC496Y
Q02
2SC945P
SW UNIT C
PB-2468A
D01
PR4632K
LIAI
CALL
MR
PRI
M-V
MW
SW UNIT B PB-2467A
SW UNIT F
PB-2465A
A-B
SW UNIT E
PB-2469A
REV
D02
PR4632K
S01
POWER
FUSE
C3
C4
0.01x2
J01
AC
J02
DC
D03
S1B
METER LAMP

FT-726R

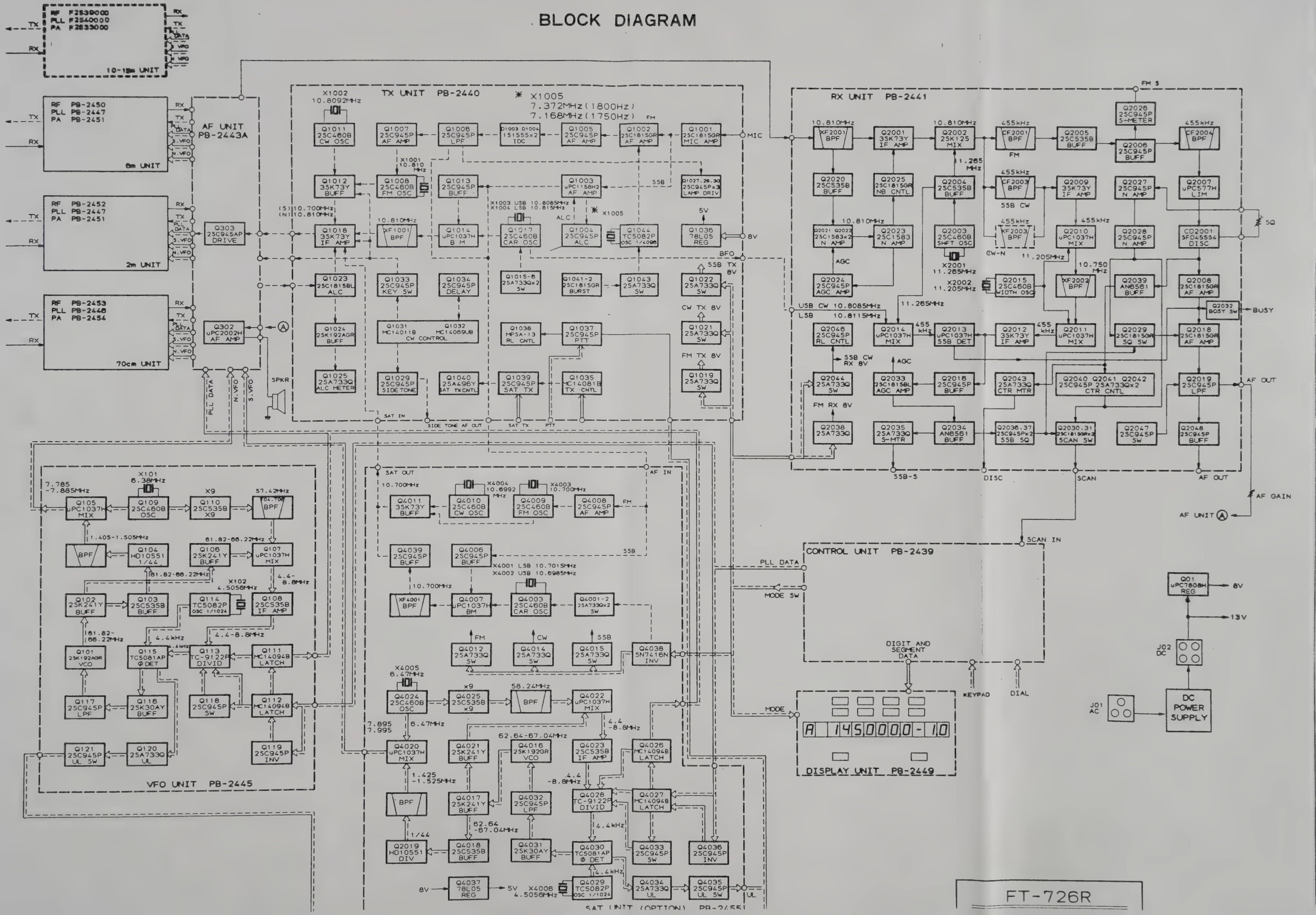
INTERCONNECTION DIAGRAM


SCAN/SQL SW UNIT PB-2448A (No.5xxx)
SW UNIT A PB-2458A
VFO UNIT PB-2445A (No.1xxx)
SAT UNIT PB-2455A (No.4xxx)
TX UNIT PB-2440A (No.1xxx)
RX UNIT PB-2441A (No.2xxx)
AF UNIT PB-2443A (No.3xxx)
Q01 uPC7808H
CNTL UNIT PB-2439A (No.3xxx)
SW UNIT H PB-2440
SW UNIT G PB-2460A
SW UNIT C
SW UNIT B PB-2457A
DISPLAY UNIT PB-2449A (No.2xxx)
MIC GAIN
SQ
RF GAIN
AF GAIN
TONE
WIDTH
SHIFT
SP
PHONES
KEY
EXT SP
AF OUT
EXT PTT
J01 AC
J02 DC
METER LAMP
POWER
FUSE
DRIVE
FT-726R
CONNECTION DIAGRAM

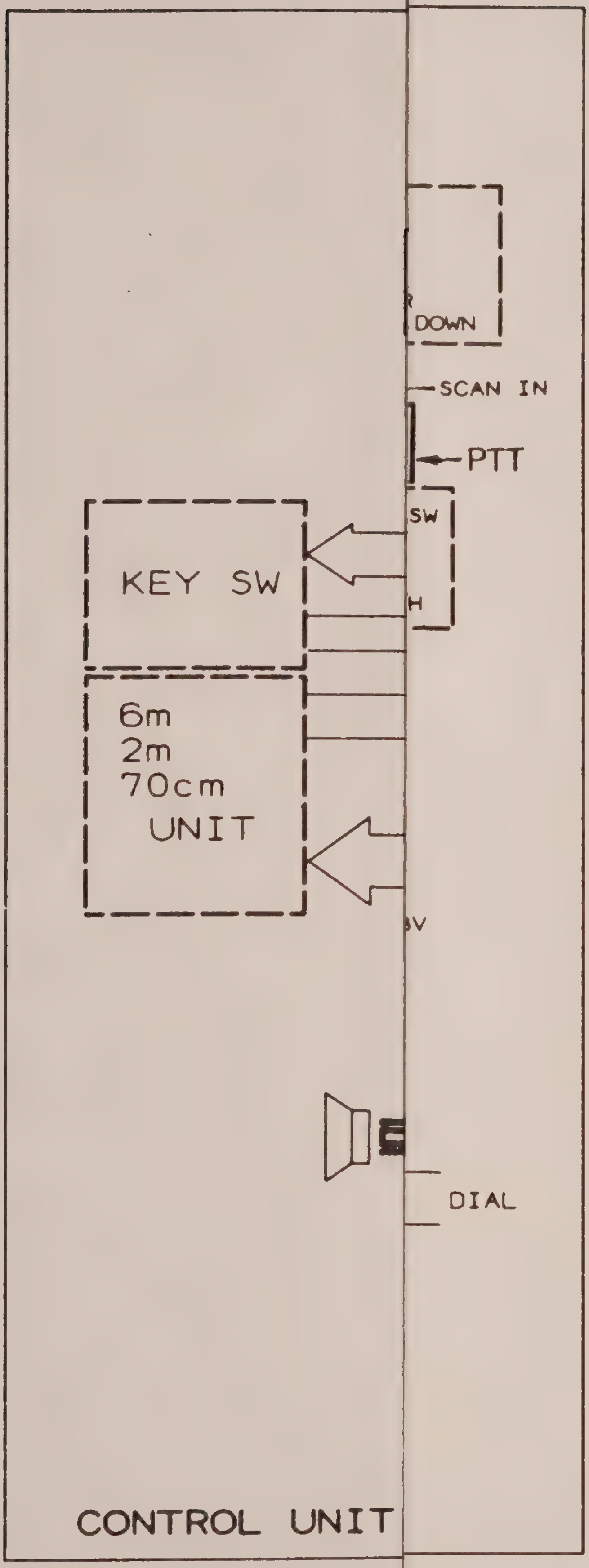

RF F2539000
PLL F2540000
PA F2533000
TX
RX
DATA
S.VFO
N.VFO
10-15m UNIT
RF PB-2450
PLL PB-2447
PA PB-2451
6m UNIT
RF PB-2452
PLL PB-2447
PA PB-2451
2m UNIT
RF PB-2453
PLL PB-2448
PA PB-2454
70cm UNIT
PLL DATA
AF UNIT
PB-2443A
Q303
2SC945AP
DRIVE
Q302
uPC2002H
AF AMP
FM S
455kHz
CF2001
BPF
FM
Q2005
2SC535B
BUFF
Q2026
2SC945P
S-METER
Q2006
2SC945P
BUFF
CF2004
BPF
CF2003
BPF
SSB CW
Q2009
3SK73Y
IF AMP
Q2027
2SC945P
N AMP
Q2007
uPC577H
LIM
XF2003
BPF
CW-N
Q2010
uPC1037H
MIX
11.205MHz
Q2028
2SC945P
N AMP
CD2001
SFD455S4
DISC
SQ
10.750 MHz
Q2015
2SC460B
WIDTH OSC
XF2002
BPF
Q2039
AN6581
BUFF
Q2008
2SC1815GR
AF AMP
Q2032
BUSY SW
BUSY
Q2012
3SK73Y
IF AMP
455 kHz
Q2011
uPC1037H
MIX
Q2029
2SC1815GR
SQ SW
Q2018
2SC1815GR
AF AMP
Q2043
2SA733Q
CTR MTR
Q2040 Q2041 Q2042
2SC945P 2SA733Qx2
CTR CNTL
Q2019
2SC945P
LPF
AF OUT
N.VFO
S.VFO
Q2036.37
2SC945Px2
SSB SQ
Q2030.31
2SC1815GRx2
SCAN SW
Q2047
2SC945P
SW
Q2048
2SC945P
BUFF
DISC
SCAN
AF OUT
AF GAIN
AF UNIT Ⓐ
SCAN IN
7.785
-7.885MHz
X101
6.38MHz
X9
Q105
uPC1037H
MIX
Q109
2SC460B
OSC
Q110
2SC535B
X9
1.405-1.505MHz
61.82-66.22MHz
BPF
Q104
HD10551
1/44
Q106
2SK241Y
BUFF
61.82-66.22MHz
X102
4.5056MHz
Q102
2SK241Y
BUFF
Q103
2SC535B
BUFF
Q114
TC5082P
OSC 1/1024
61.82-
66.22MHz
4.4kHz
4.4-8.8MHz
Q101
2SK192AGR
VCO
Q115
TC5081AP
Φ DET
Q113
TC-9122P
DIVID
Q117
2SC945P
LPF
Q116
2SK30AY
BUFF
Q118
2SC945P
SW
DIAL
Q121
2SC945P
UL SW
Q120
2SA733Q
UL
VFO UNIT PB-2445
Q01
uPC7808H
REG
8V
13V
J02
DC
J01
AC
DC
POWER
SUPPLY

FT-726R

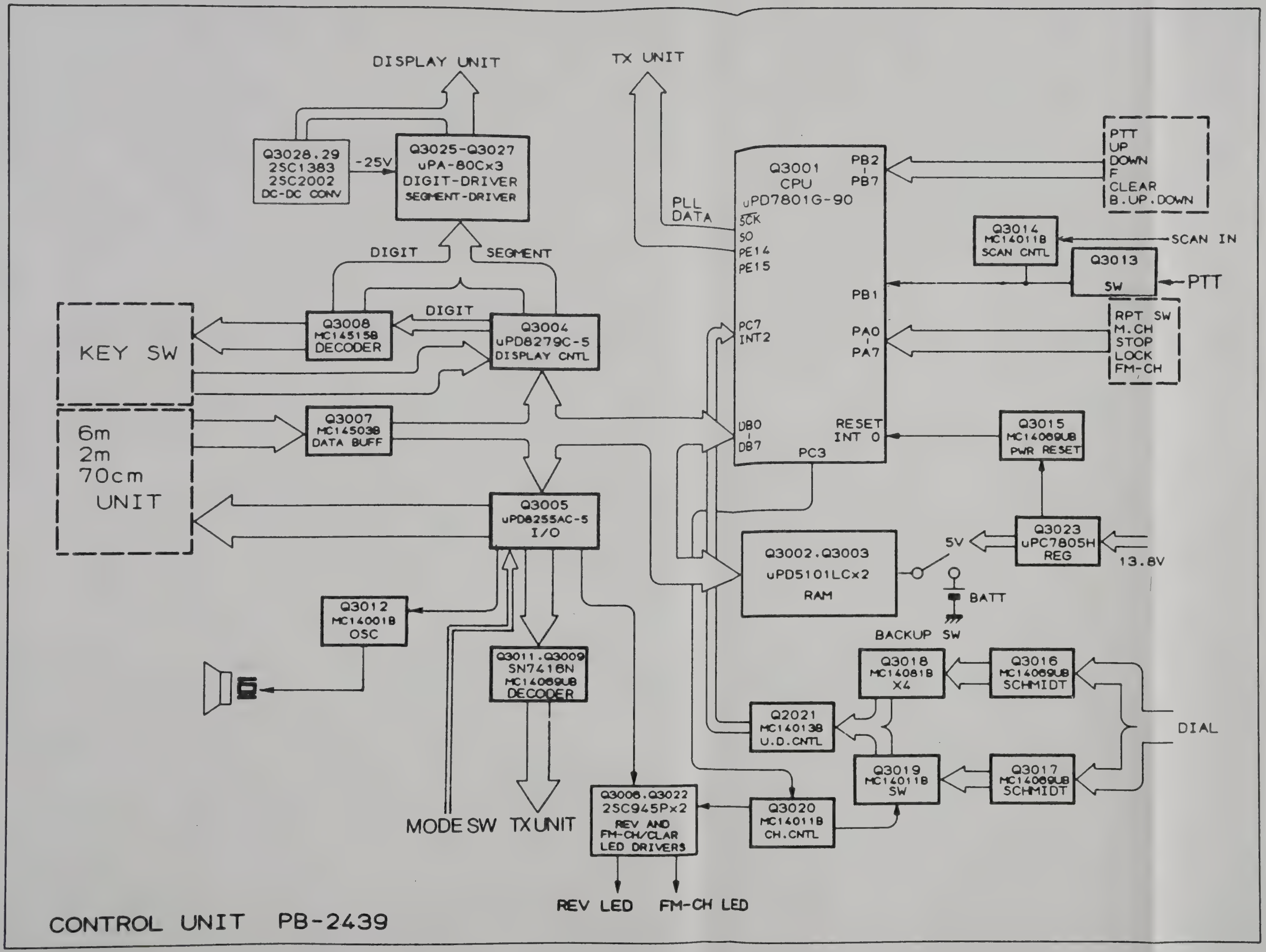
BLOCK DIAGRAM



FT-726R

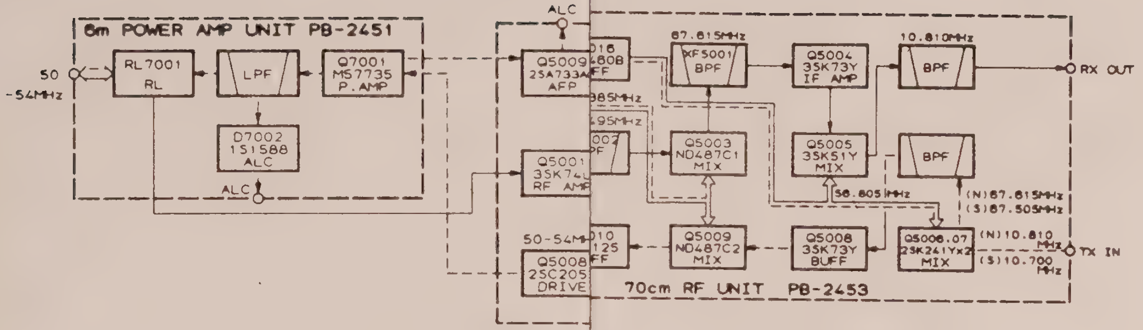


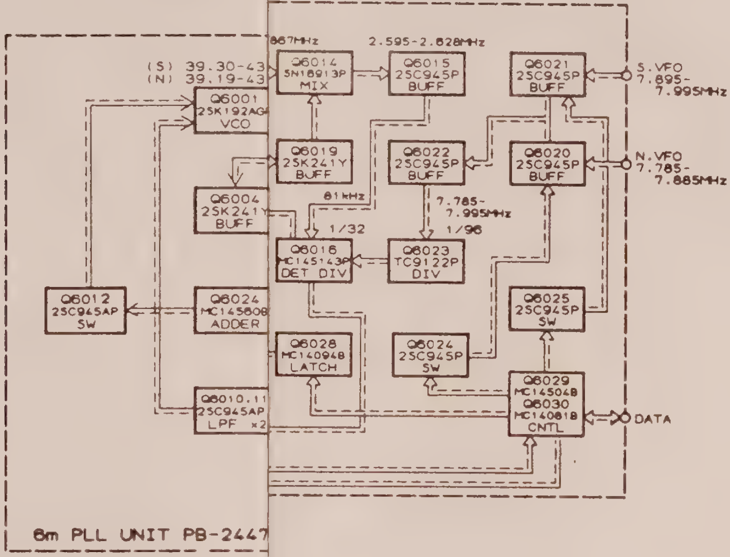
FT-726
CONTROL UNIT
BLOCK DIAGRAM

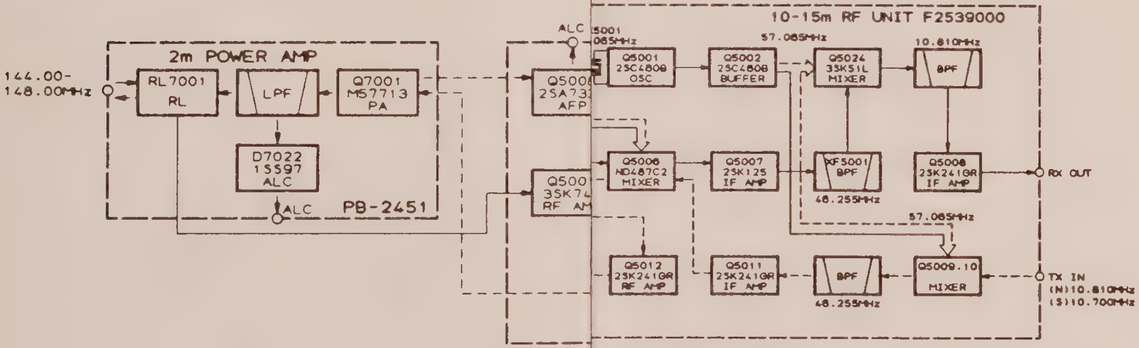


FT-726
CONTROL UNIT
BLOCK DIAGRAM

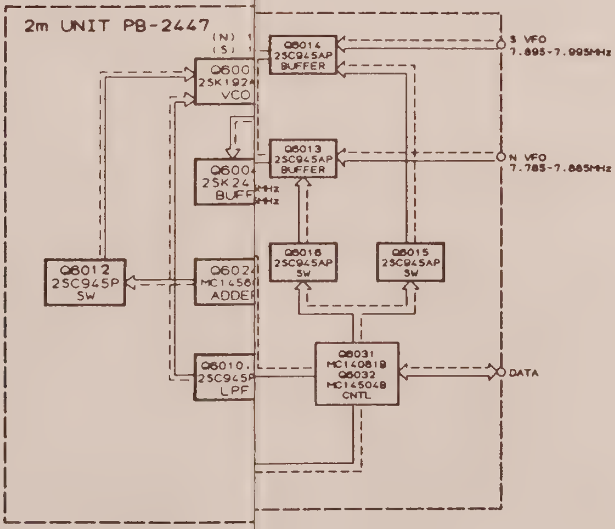
FT-726R
6m UNIT
BLOCK DIAGRAM

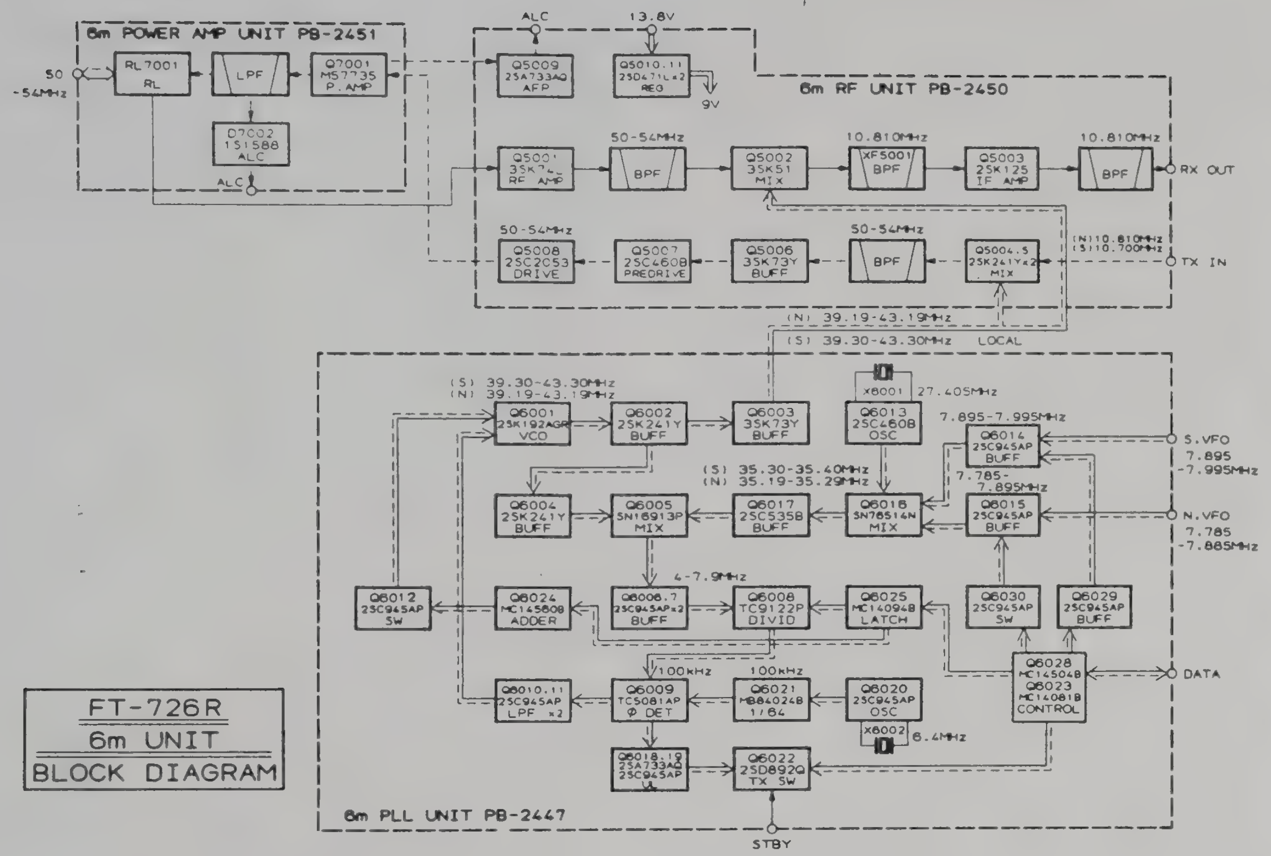




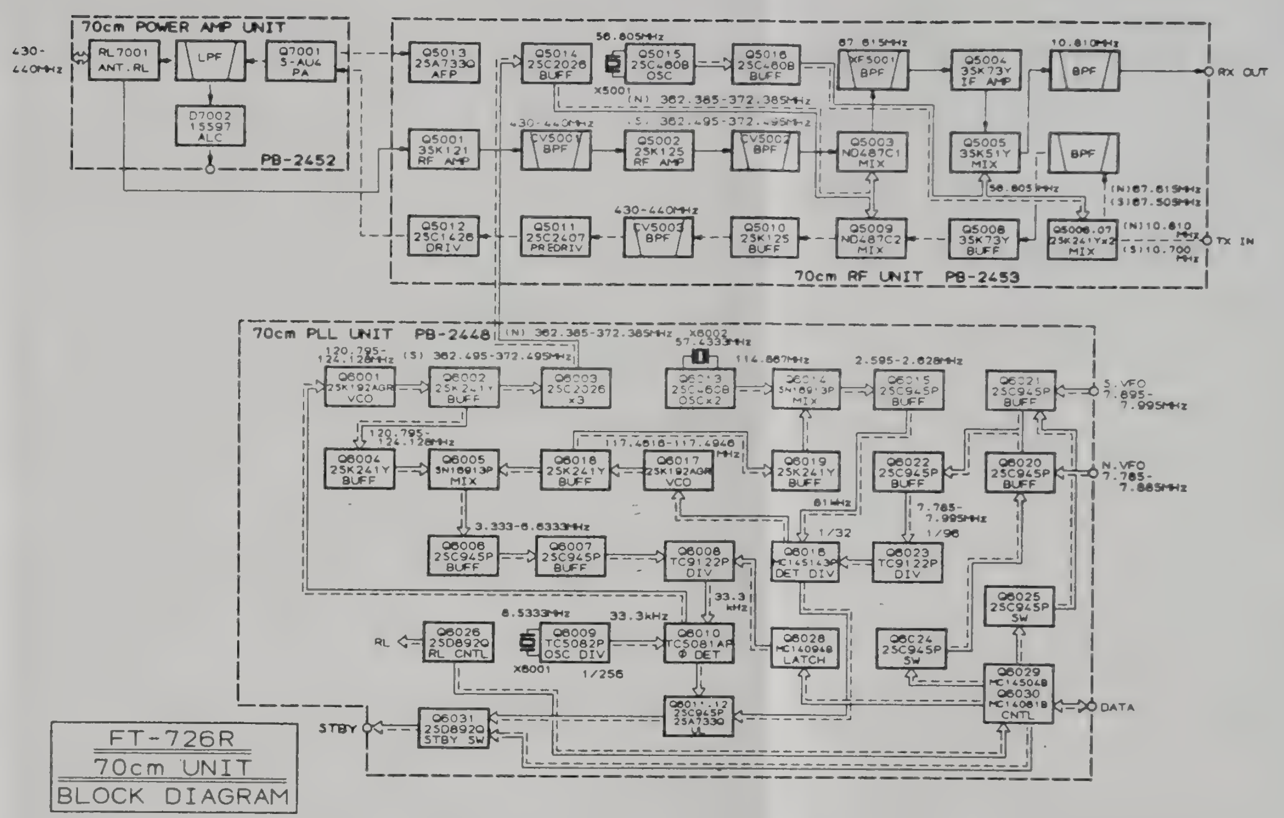


FT-726R
2m UNIT
BLOCK DIAGRAM

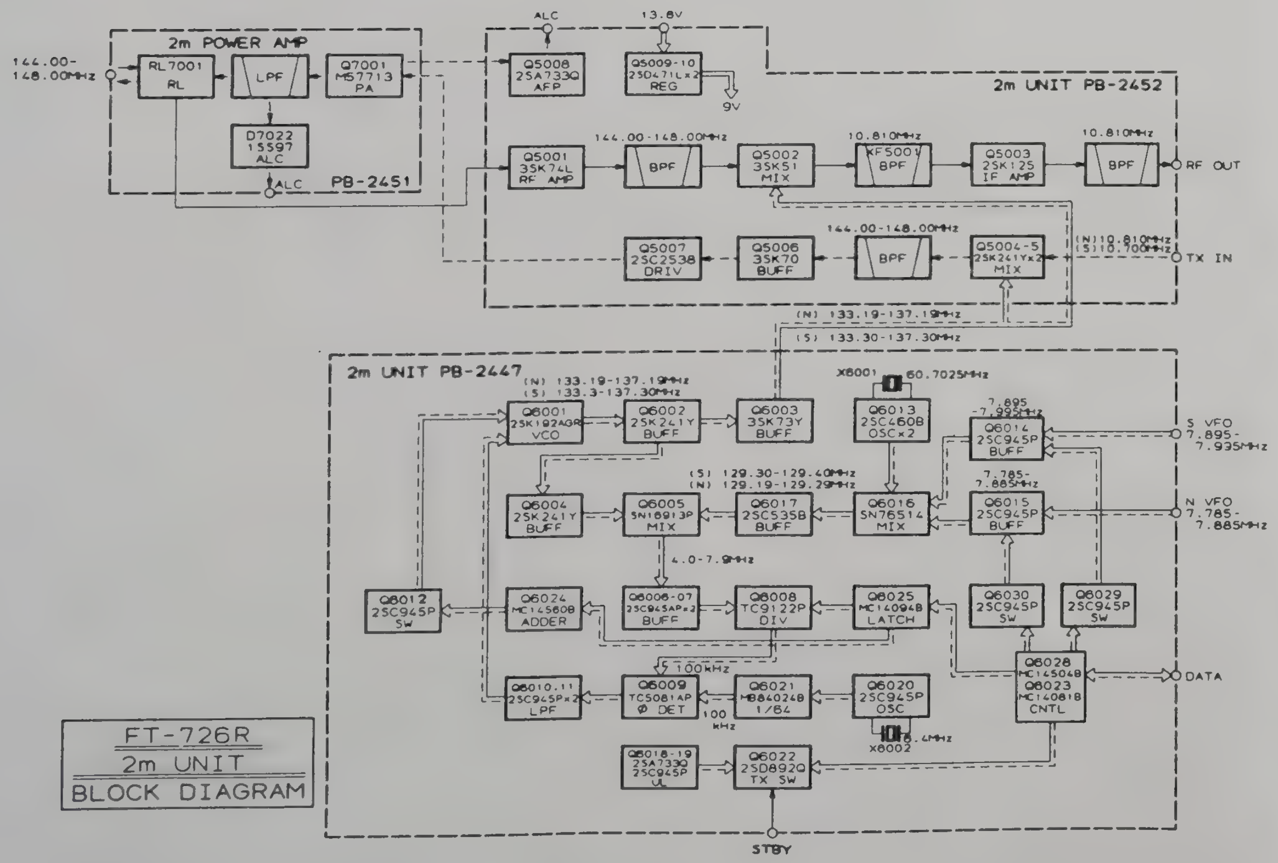




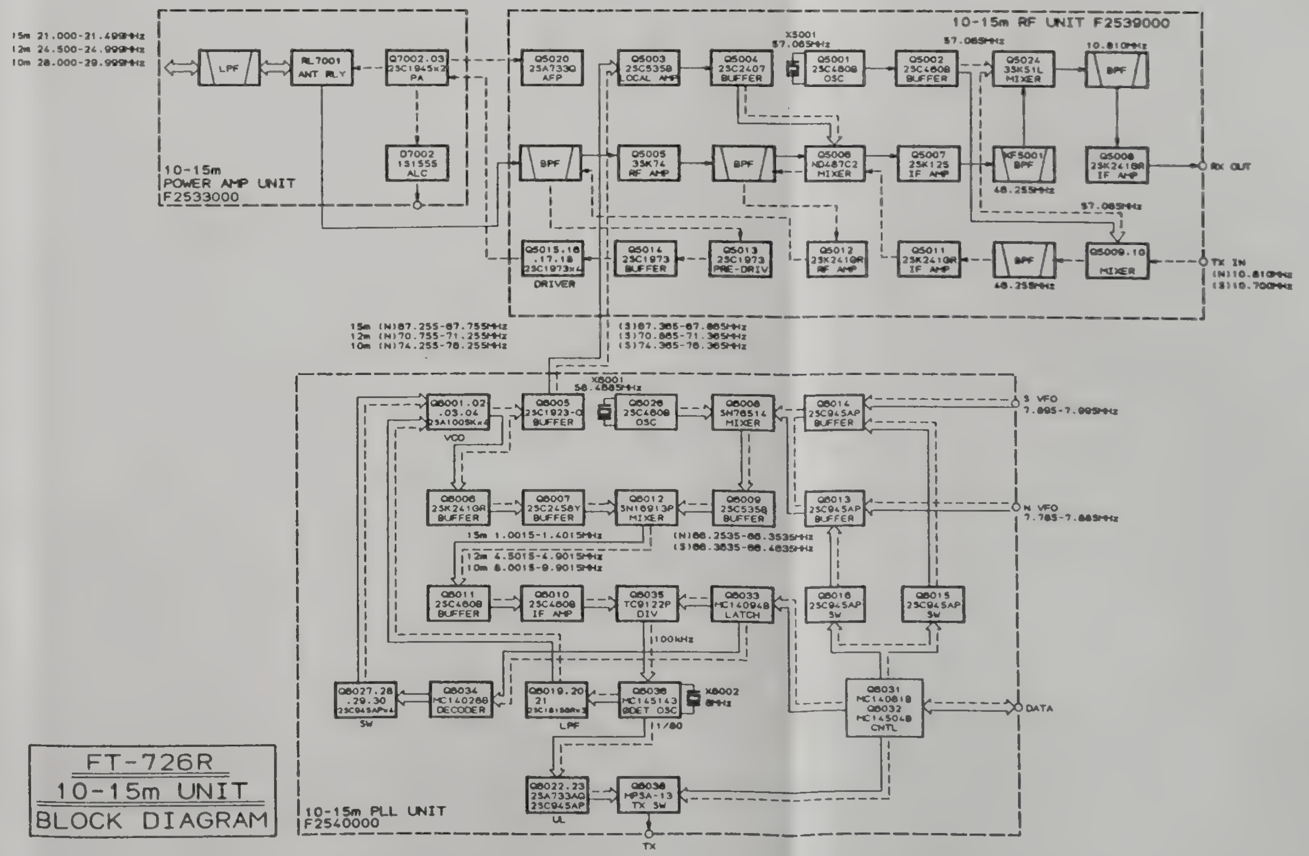
FT-726R
6m UNIT
BLOCK DIAGRAM



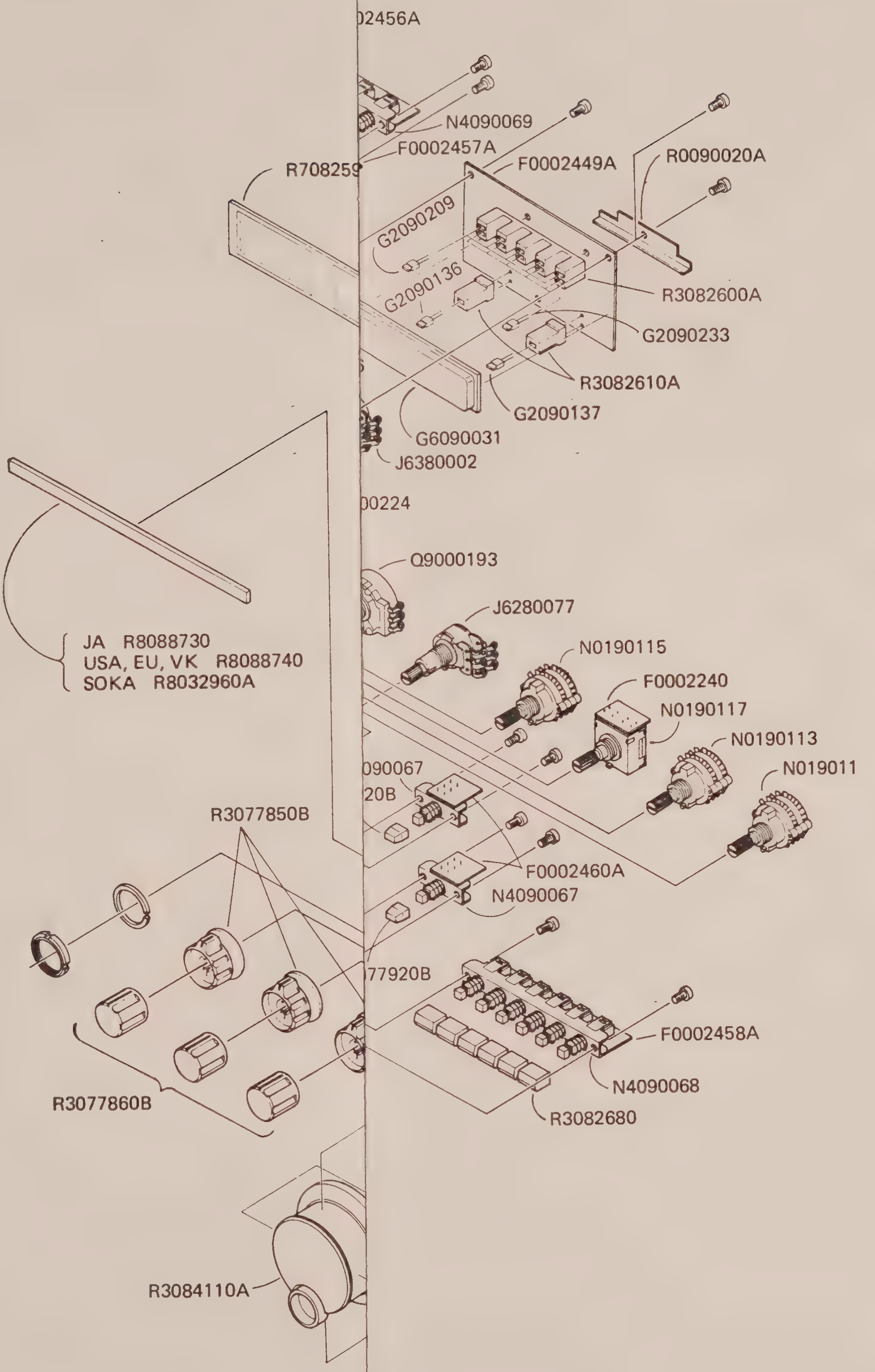
FT-726R
70cm UNIT
BLOCK DIAGRAM



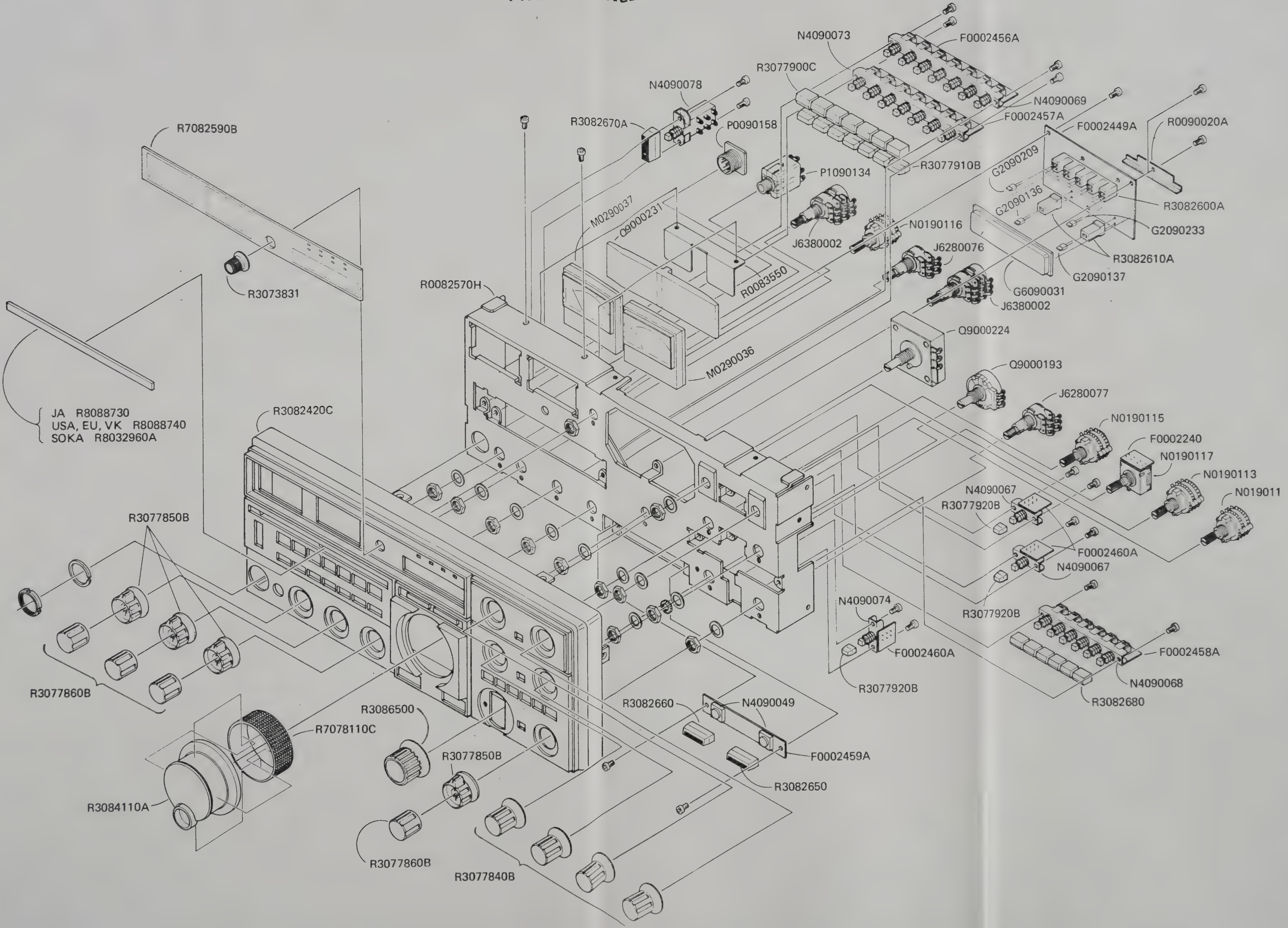
FT-726R
2m UNIT
BLOCK DIAGRAM

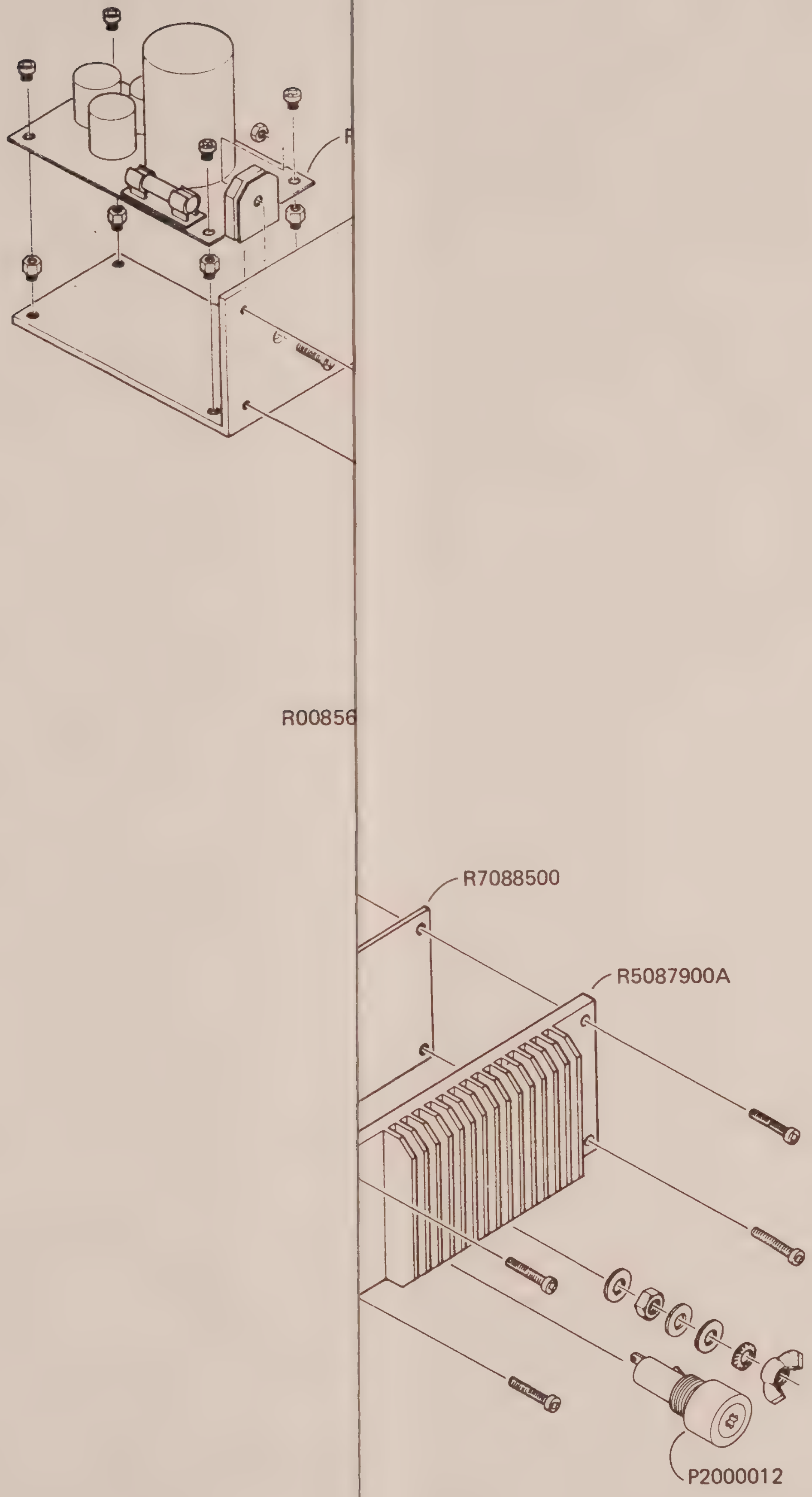


FT-726R
10-15m UNIT
BLOCK DIAGRAM


)2456A
N4090069
F0002457A
R708259
F0002449A
R0090020A
G2090209
G2090136
R3082600A
G2090233
R3082610A
G2090137
G6090031
J6380002
)00224
Q9000193
J6280077
N0190115
F0002240
N0190117
N0190113
N019011
JA R8088730
USA, EU, VK R8088740
SOKA R8032960A
090067
20B
R3077850B
F0002460A
N4090067
77920B
F0002458A
N4090068
R3077860B
R3082680
R3084110A

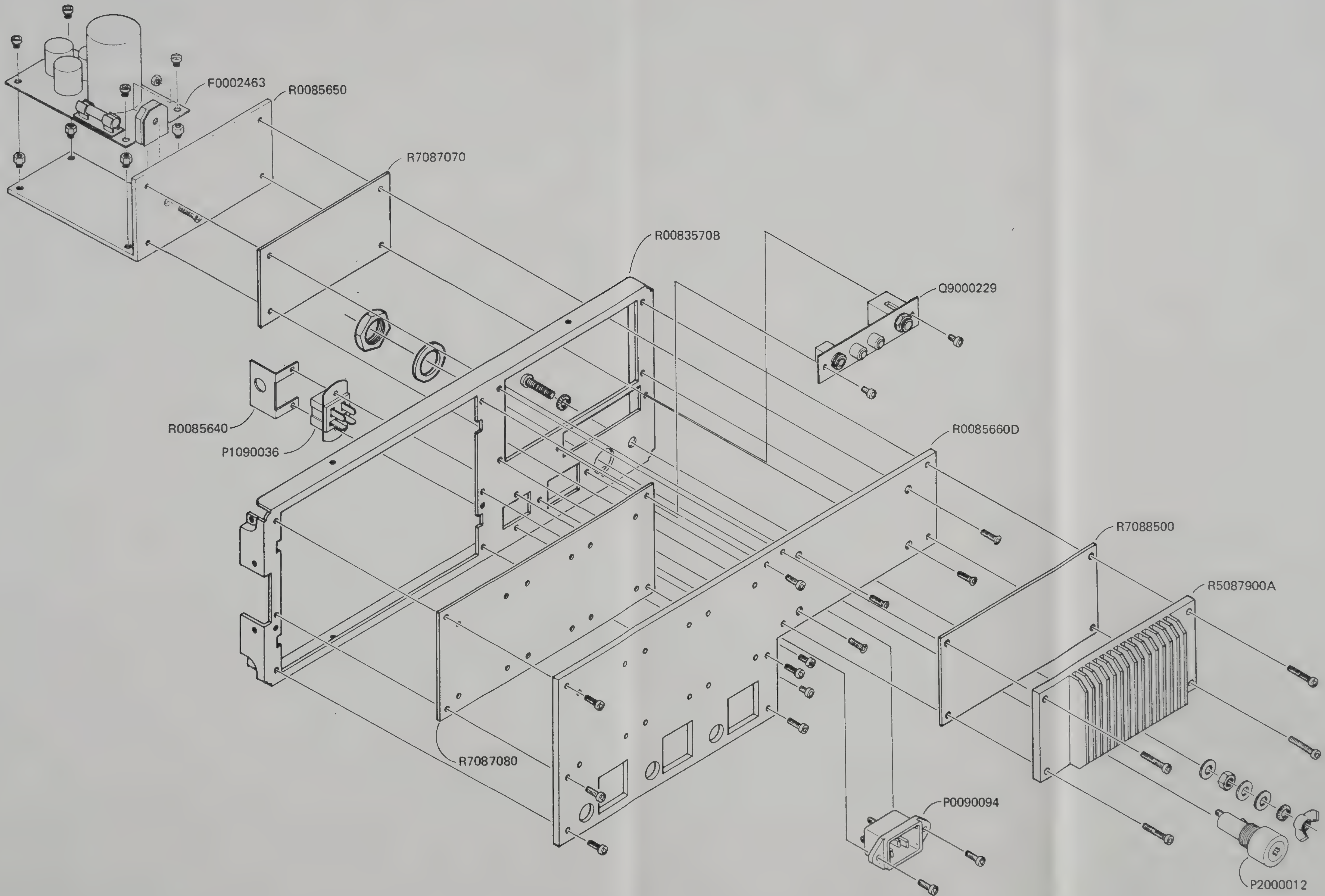
FRONT PANEL EXPLODED VIEW





PB
PB
PB
PB-
PB-
PB-
PB-
PB-
Q1
D3
D1.
R3
R1.
R4
R5
VR
VR

REAR PANEL EXPLODED VIEW



PARTS LIST

MAIN CHASSIS

Symbol No.	Part No.	Description
		SWITCH UNIT A
PB-2456A	F0002456A	Printed Circuit Board
	C024560A	PCB with S2
		SWITCH UNIT B
PB-2457A	F0002457A	Printed Circuit Board
	C024570A	PCB with S3
		SWITCH UNIT C
PB-2458A	F0002458A	Printed Circuit Board
	C024580A	PCB with S10, D1
		SWITCH UNIT D
PB-2459A	F0002459A	Printed Circuit Board
	C024590A	PCB with S5, S6
		SWITCH UNIT E
PB-2460A	F0002460A	Printed Circuit Board
	C024600A	PCB with S8, D2
		SWITCH UNIT F
PB-2460A	F0002460A	Printed Circuit Board
	C024601A	PCB with S11
		SWITCH UNIT G
PB-2460A	F0002460A	Printed Circuit Board
	C024602A	PCB with S14
		SWITCH UNIT H
PB-2240	F0002240	Printed Circuit Board
	C022400	PCB with S13
		IC
Q1	G1090294	μPC7808H
		DIODE
D3	G2090232	Si S11B
D1,2	G2090208	LED PR4632K
		RESISTOR
R3	J20306100	Metallic film 1W 10Ω
R1,2	J10276101	Carbon Composition 1/2W GK 100Ω
R4	J01245102	" film 1/4W TJ 1kΩ
R5	J01245152	" " " " 1.5kΩ
		POTENTIOMETER
VR1,4	J63800002	K16C5000C-10KB-50KB-10KA 10KΩB/50KΩB, 10KΩA
VR2	J62800077	K16B1000L-10KBx2 10KΩB·10kΩB
VR3	J62800076	K16BA0A07-10KBx2 10KΩB·10KΩB
		CAPACITOR
C1,2	K13179008	Ceramic 50WV F 0.01μF (DD106F103Z50V)
C3,4	K12329001	" 1.2KVAC 0.01μF (ECKDAL103PE)
C5	K19149017	Semiconductor Ceramic 25WV 0.022μF (UAT06X223K-L45AE)
C6–10	K12171102	Ceramic 50WV E 0.001μF (DD104E102P50V)
		METER
M1	M0290036	S/ALC
M2	M0290037	PO/DISC
		SPEAKER
SP1	M4090047	SS-77KYH 8Ω 2W
	T9100301	Speaker Lead
		SWITCH
S1	N4090078	NE15J 1P-0022AC2020
S2	N4090069	SUJ-72A/E3891805M
S3	N4090073	SUJ-72A/E6057717M
S4	Q9000224	LA24034
S5,6	N4090049	KHC10901
S7	N0190113	SRN-2046/E3891856M
S8,11	N4090067	SUJ-12A/E42129790
S9	N0190114	SRN-2083N/E3891848M
S10	N4090068	SUJ-61A/E3891813M
S12	N0190115	SRN-1034N/F6058322M
S13	N0190117	SRS-101C
S14	N4090074	SUJ-12A/E6058306M
S15	Q9000193	EWT-XDDS2050B
S16	N0190116	SRN-1043N/204657690
		CONNECTOR
J1	P0090094	PA-125
J2	P1090036	QS-AB4M
J7	P0090158	FM214-8SS
J8	P1090134	SG7627
J3,4,5,6	Q9000229	PIN JACK BOARD (KEY, EXT SPKR, ALC, PTT)
		POWER TRANSFORMER
PT1	L3030104A	
		TERMINAL
	Q6000003	1L2P (1-0-1)
	Q6000077	ML-3161C-8P
		FUSE HOLDER
FH1	P2000012	SN2059
	Q9000231	LIGHT PLATE (with lamp)

		PLUG
P1 (with wire)	T9204636A	
P2 (")	T9204634F	
P3 (")	T9204635	
P12 (")	T9204501A	
P13 (")	T9204502A	
P14 (")	T9204503A	
P19 (")	T9204637	
P20 (")	T9204508B	
P26 (")	T9204513A	
		FUSE
	Q0000003	2A 100V-117VAC
	Q0000002	1A 200V-234VAC

* * * * *

		KNOB
	R3084110A	FT-50T TUNING
	R7078110B	Rubber Ring
	R3086500	FT-29T FM-CH/CLAR
	R3077840B	FT-22WK RPT SELECT, SATELLITE, VFO, MEMORY
	R3077850B	FT-22WDNS DRIVE, WIDTH, SQL, TONE
	R3077860B	FT-15WK MIC GAIN, AF GAIN, RF GAIN, SHIFT
	R3073831	FT-13UTK SAT METER
	R3077900B	PUSH KNOB A PROC...D.LOCK
	R3077910	" " G LSB...UP
	R3077920	" " H REVERSE, VFO A=B,STEP
	R3082670	" " I POWER
	R3082680	" " J VFO...MW
	R3082650	KEY TOP A BAND UP
	R3082660	" " B BAND DOWN

VFO UNIT

Symbol No.	Part No.	Description
PB-2445A	C024450A	Printed Circuit Board
	C024450A	PCB with Components
		IC
Q104	G1090296	HD10551P
Q111,112	G1090343	MC14094B
Q115	G1090473	TC5081AP
Q114	G1090239	TC5082P
Q113	G1090247	TC9122P
Q105,107	G1090101	μPC1037H
		FET
Q116	G3800301Y	2SK30AY
Q101	G3801921G	2SK192AGR
Q102,106	G3802410Y	2SK241Y
		TRANSISTOR
Q120	G3107331Q	2SA733AQ
Q109	G3304600B	2SC460B
Q103,108,110	G3305350B	2SC535B
Q117–119,121	G3309451P	2SC945AP
		DIODE
D102 104	G2090027	Si 1SS53
D101	G2090107	Varactor 1T25
		CRYSTAL
X101	H0102504	HC-18/U 6.38MHz
X102	H0102503	HC-18/U 4.505MHz
		THERMISTOR
TH101	G9090016	33D28
		RESISTOR
R115,123,126	J02245560	Carbon film 1/4W SJ 56Ω
R104,107,117,121, 138,142	J02245101	" " " " 100Ω
R151	J01245101	" " " TJ 100Ω
R106,109	J02245221	" " " SJ 220Ω
R103	J02245331	" " " " 330Ω
R111,113,129,137, 141	J02245471	" " " " 470Ω
R147	J02245561	" " " " 560Ω
R136,146,150	J02245102	" " " " 1kΩ
R116	J01215152	" " 1/8W TJ 1.5kΩ
R145	J02245152	" " 1/4W SJ 1.5kΩ
R128	J02245182	" " " " 1.8kΩ
R144,148	J02245272	" " " " 2.7kΩ
R110,114,130	J02245332	" " " " 3.3kΩ
R131–133,149	J02245392	" " " " 3.9kΩ
R152,155	J02245472	" " " " 4.7kΩ
R112	J02245682	" " " " 6.8kΩ
R143,158	J02245103	" " " " 10kΩ
R154	J02245153	" " " " 15kΩ
R134,140,157	J02245223	" " " " 22kΩ
	J02245333	" " " " 33kΩ
R102,105,108,135, 139	J02245473	" " " " 47kΩ
R153	J02245563	" " " " 56kΩ
R101,156	J02245104	" " " " 100kΩ
R127	J02245154	" " " " 150kΩ
R109	J02245334	" " " " 330kΩ
		CAPACITOR
C114,133,169	K00172010	Ceramic 50WV SL 1pF (DD104SL010C50V)
C111	K02179003	" " CK 2pF (DD104CK020C50V)
C131	K00172030	" " SL 3pF (DD104SL030C50V)
C102,103	K05173060	" " RH 6pF (DD104RH060D50V)
C107	K06173060	" " UJ 6pF (DD104UJ060D50V)
	K02173060	" " CH 6pF (DD104CH060D50V)

		PLUG
P202 (with wire)	T9204521A	

AF UNIT

Symbol No.	Part No.	Description
PB-2443A	F0002443A	Printed Circuit Board
	C024430A	PCB with Components
		IC
Q302	G1090164	μPC2002H
		TRANSISTOR
Q303	G3309451P	2SC945AP
		DIODE
D301	G2090200	PIN 1SV80
		RESISTOR
R306	J02245010	Carbon film 1/4W SJ 1Ω
R304	J02245479	〃 〃 〃 〃 4.7Ω
	J02245101	〃 〃 〃 〃 100Ω
R305	J10276221	〃 Composition 1/2W GK 220Ω
R309	J02245331	〃 film 1/4W SJ 330Ω
	J01245331	〃 〃 〃 TJ 330Ω
R308	J02245222	〃 〃 〃 SJ 2.2kΩ
R311	J02245332	〃 〃 〃 〃 3.3kΩ
R303	J02245103	〃 〃 〃 〃 10kΩ
R312	J01245153	〃 〃 〃 TJ 15kΩ
R302	J02245473	〃 〃 〃 SJ 47kΩ
R301	J02245104	〃 〃 〃 〃 100kΩ
		CAPACITOR
C313	K00175470	Ceramic 50WV SL 47pF (DD104SL470J50V)
C301,307,310, 317–322	K12171102	〃 〃 E 0.001μF (DD104E102P50V)
	K13179008	〃 〃 F 0.01μF (DD106F103Z50V)
C308,316	K19149025	Semiconductor Ceramic 25WV 0.1μF (UAT13X104K-L46AE)
C302	K40179002	Electrolytic 50WV 0.1μF (ECE-A1HK0R1)
C312	K40179001	〃 〃 1μF (ECE-A1HK010)
C303	K40109001	〃 10WV 100μF (10RE100)
C314	K40109007	〃 〃 220μF (10RE220)
C315	K40129019	〃 16WV 1000μF (16RC1000)
C309	K40120338	〃 〃 3300μF (16RL3300)
		INDUCTOR
L301	L2030067	
L302,303	L1190132	LAL04NA221K 220μH
		CONNECTOR
J302	P0090041	5048-03A
J304,308,311,314	P0090042	5048-05A
J301,305,316	P0090051	5048-06A
J303,306,307,310, 313	P0090053	5048-11A
J309,312,315	P0090038	5048-12A
P301 (with wire)	T9204631A	

SCAN/SQL UNIT

Symbol No.	Part No.	Description
PB-2448A	F0002448A	Printed Circuit Board
	C024480A	PCB with Components Model F
	C024480B	〃 Model A,X
	C024480C	〃 Model B,C,D,E
		TRANSISTOR
Q501	G3107331P /Q	2SA733AP or Q
Q502	G3309451P	2SC945AP
		DIODE
D501	G2090027	Si 1SS53
		RESISTOR
R504	J02245331	Carbon film 1/4W SJ 330Ω
R505	J01245103	〃 〃 〃 TJ 10kΩ
R501,502	J02245473	〃 〃 〃 SJ 47kΩ
R503	J02245334	〃 〃 〃 〃 330kΩ
		CAPACITOR
C501	K23170008	Monolithic Ceramic 50WV 0.1μF (RPE110F104Z50)
C502	K40129012	Electrolytic 16WV 10μF (ECE-A1CK100)
		SWITCH
S501	N6090028	SSHP23-05
S502–504	N6090029	SSFYP22-07
		CONNECTOR
J501	P0090100	5049-12A
P501 (with wire)	T9204531A	
P501 (〃)	T9204532B	EU Model
		TP TERMINAL
	Q5000036	TP-G

TX UNIT

Symbol No.	Part No.	Description	
PB-2440A	F0002440A	Printed Circuit Board	
	C024400A	PCB with Components Model F	
	C024400B	〃	Model A,X
	C024400C	〃	Model B,C,D,E
		IC	
Q1031	G1090068	MC14011B	
Q1032	G1090126	MC14069UB	
Q1035	G1090053	MC14081B	
Q1044	G1090239	TC5082P	
Q1036	G1090084	μPC78L05	
Q1014	G1090101	μPC1037H	
Q1003	G1090493	μPC1158H2	
		TRANSISTOR	
Q1040	G3104960Y	2SA496Y	
Q1015,1016,1021, 1022,1025,1043	G3107331Q	2SA733AQ	
Q1008,1011,1017,	G3304600B	2SC460B	
Q1004–1007, 1013, 1027–1030, 1033,1034,1037, 1039	G3309451P	2SC945AP	
Q1023	G3318150B	2SC1815BL	
Q1001,1002,1041, 1042	G3318150G	2SC1815GR	
Q1038	G3090005	MPS-A13	
		FET	
Q1012,1018	G4800730Y	3SK73Y	
		DIODE	
D1001,1002	G2001880F	Ge	1S188FM
D1003,1004	G2015550	Si	1S1555
D1018,1019	G2015880	〃	1S1588
D1007,1009, 1016–1017, 1020–1027, 1029–1033, 1036–1057,1059	G2090027	〃	1SS53
D1005	G2090180	Varactor	FC53-M5
D1058	G9090007	Varistor	MV12
D1006	G9090005	〃	MV103
D1008	G2090188	Zener	HZ5C1
		CRYSTAL	
X1001	H0102448	HC-18/T3P	10.810MHz
X1002	H0102511	HC-18/U	10.8092MHz
X1003	H0100992	HC-18/U	10.8115MHz
X1004	H0100991	HC-18/U	10.8085MHz
X1005 (1750Hz Tone)	H0101982	HC-18/T	7.168MHz
X1005 (1800Hz Tone)	H0101983	HC-18/T	7.372MHz
		THERMISTOR	
TH1001	G9090001	SDT250	

		CRYSTAL FILTER
XF1001	H1102074	XF-10.8LS 10.810MHz
		RESISTOR
R1021,1062,1072, 1086,1122	J02245560	Carbon film 1/4W SJ 56Ω
R1088	J01245560	〃 〃 〃 TJ 56Ω
R1004,1032,1036, 1045,1067,1094, 1095,1120,1128, 1166,1169,1170	J02245101	〃 〃 〃 SJ 100Ω
R1011,1044,1076	J02245221	〃 〃 〃 〃 220Ω
R1046,1176	J02245331	〃 〃 〃 〃 330Ω
R1071	J02245471	〃 〃 〃 〃 470Ω
R1125	J02245681	〃 〃 〃 〃 680Ω
R1089	J02245821	〃 〃 〃 〃 820Ω
R1001,1013,1043, 1069,1084,1093	J02245102	〃 〃 〃 〃 1kΩ
	J02245122	〃 〃 〃 〃 1.2kΩ
R1016,1022,1037, 1061,1087,1106, 1111,1121,1165	J02245222	〃 〃 〃 〃 2.2kΩ
R1063,1090	J02245332	〃 〃 〃 〃 3.3kΩ
R1031,1033,1132, 1157,1162,1177	J02245472	〃 〃 〃 〃 4.7kΩ
R1178	J01245472	〃 〃 〃 TJ 4.7kΩ
R1081–1083	J02245562	〃 〃 1/4W SJ 5.6kΩ
R1151	J01245682	〃 〃 〃 TJ 6.8kΩ
R1005,1008,1009, 1023,1025,1066, 1096,1097,1102, 1104,1105,1108, 1126,1127, 1129–1131, 1148,1154, 1156,1171,1172	J02245103	〃 〃 〃 SJ 10kΩ
R1027	J02245123	〃 〃 〃 〃 12kΩ
R1112	J02245153	〃 〃 〃 〃 15kΩ
R1010,1012,1028, 1041,1042,1054, 1055,1060,1064, 1091,1107,1136, 1137,1173	J02245223	〃 〃 〃 〃 22kΩ
R1114	J02245273	〃 〃 〃 〃 27kΩ
R1040	J02245333	〃 〃 〃 〃 33kΩ
R1039,1074,1075, 1077–1080, 1098,1100,1101, 1113,1152,1153, 1155,1159,1160, 1163,1164,1167	J02245473	〃 〃 〃 〃 47kΩ
R1038,1059	J02245563	〃 〃 〃 〃 56kΩ
R1014,1015,1024, 1034,1065,1068, 1070,1073,1092, 1118, 1142–1047, 1149,1150, 1168	J02245104	〃 〃 〃 〃 100kΩ
R1140	J20249029	Metallic 〃 〃 130kΩ
R1003	J02245154	Carbon 〃 〃 SJ 150kΩ
R1026	J02245184	〃 〃 〃 〃 180kΩ
R1006,1019,1035, 1119	J02245224	〃 〃 〃 〃 220kΩ
R1002,1007,1020, 1030,1115	J02245334	〃 〃 〃 〃 330kΩ
R1029,1123	J02245474	Carbon 〃 〃 〃 470kΩ
R1109,1135,1139	J02245105	〃 〃 〃 〃 1MΩ
R1110,1138,1158	J02245155	〃 〃 〃 〃 1.5MΩ

		POTENTIOMETER
VR1006	J51745103	H0651A013-10KB 10kΩ
VR1002	J51745223	H0651A015-22KB 22kΩ
VR1001,1008	J51745473	H0651A017-47KB 47kΩ
VR1005,1009	J51745104	H0651A019-100KB 100kΩ
VR1007	J51745474	H0651A023-470KB 470kΩ
		CAPACITOR
C1029	K06172040	Ceramic 50WV UJ 4pF (DD104UJ040J50V)
C1048,1060	K00173100	" " SL 10pF (DD104SL100D50V)
C1110	K00175150	" " " 15pF (DD104SL150J50V)
C1043,1062,1063	K06175270	" " UJ 27pF (DD104UJ270J50V)
C1111	K00175330	" " SL 33pF (DD104SL330J50V)
C1004,1061	K00175470	" " " 47pF (DD104SL470J50V)
	K00175820	" " " 82pF (DD104SL820J50V)
C1064	K06175151	" " UJ 150pF (DD107UJ151J50V)
C1030,1031	K06175181	" " " 180pF (DD104UJ181J50V)
C1044,1045	K06175221	" " " 220pF (DD109UJ221J50V)
C1067	K00175221	" " SL 220pF (DD107SL221J50V)
C1001,1002,1010, 1028,1057,1074, 1080 – 1082	K12171102	" " F 0.001μF (DD104F102P50V)
C1068	K10176152	" 50WV B 0.0015μF (DD104B152K50V)
C1019,1070	K19149001	Semiconductor Ceramic 25WV 0.001μF (UAT04X102K-L05AE)
C1020	K19149011	" " " 0.0068μF (UAT05X682K-L05AE)
C1008,1021,1025, 1034,1042,1046, 1047,1084,1088, 1094, 1104 – 1107,1120	K13179008	Ceramic 50WV F 0.01μF (DD106F103Z50V)
C1100,1101,1115, 1116	K19149013	Semiconductor Ceramic 25WV 0.01μF (UAT05X103K-L05AE)
C1099	K19149017	" " " 0.022μF (UAT06X223K-45AE)
C1049,1051,1058, 1059,1066,1069, 1071,1072,1075, 1077,1078,1092, 1095,1113	K19149021	" " " 0.047μF (UAT08X473K-L45AE)
C1098	K55209003	Polypropylene 0.0047μF (PRA4701F4700PF)
C1121	K70167154	Tantalum 35WV 0.15μF (CS15E1VR15M)
C1093	K70140005	" 25WV 0.47μF (489D474X0025A1)
C1083	K70140007	" " 1μF (489D105X0025A1)
C1109	K70127225	" 16WV 2.2μF (CS15E1C2R2M)

C1122	K70120006	" " 3.3μF (489D335X0016B1)
C1003,1005,1006, 1009,1013,1015, 1055,1119	K40179002	Electrolytic 50WV 0.1μF (ECE-A1HK0R1)
C1011, 1016 1018, 1026,1027, 1087,1089,1091, 1096,1097,1117	K40179001	Electrolytic 50WV 1μF (ECE-A1HK010)
C1014,1056	K40149011	" 25WV 4.7μF (ECE-A1EK4R7)
C1022	K40129015	" 16WV 4.7μF (ECE-A1CK4R7)
C1012,1023,1024, 1032,1033,1054, 1085,1090,1102, 1103,1108,1114	K40129012	" " 10μF (ECE-A1CK100)
C1052	K40129013	" " 22μF (ECE-A1CK220)
C1053	K40109010	" 10WV 47μF (ECE-A1AK470)
C1007	K40109001	" " 100μF (10RE100)
		TRIMMER CAPACITOR
TC1002 - 1004	K91000029	ECV-1ZW 20x53 20pF
		INDUCTOR
L1002	L1190014	FL4H-100K
		TRANSFORMER
T1001	L0021354	
T1002,1003	L0021163	
		RELAY
RL1001,1002	M1190001	FBR211A009M
		CONNECTOR
J1003	P0090050	5048-04A
J1005	P0090042	5048-05A
J1011	P0090051	5048-06A
J1007,1010	P0090054	5048-07A
J1004,1009	P0090037	5048-08A
J1008	P0090072	5048-09A
J1001	P0090052	5048-10A
J1006	P0090038	5048-12A
J1002	P0090039	5048-13A
		FERRITE BEADS
FB1001 – 1003	L9190001	Ri 3x3x1

RX UNIT

Symbol No.	Part No.	Description
PB-2441A	F0002441A	Printed Circuit Board
	C024410A	PCB with Components Model F
	C024410B	" Model A,B,C,D,E
		IC
Q2034,2039	G1090500	AN6561
Q2007	G1090072	μPC577H
Q2010,2011,2013, 2014	G1090101	μPC1037H

		TRANSISTOR
Q2035,2038, 2041–2044	G3107331P	2SA733AP
Q2003,2015	G3304600B	2SC460B
Q2004,2005,2020	G3305350B	2SC535B
Q2006,2016,2019, 2024, 2026–2028, 2032,2036,2037, 2040,2046–2048	G3309451P	2SC945AP
Q2021–2023	G3315830B	2SC1583B
Q2033	G3318150B	2SC1815BL
Q2008,2018,2025, 2029–2031	G3318150G	2SC1815GR
		FET
Q2002	G3801680D	2SK168D
Q2001,2009,2019	G4800730Y	3SK73Y
		DIODE
D2004,2005,2023, 2024,2026,2027, 2029–2032	G2001880F	Ge 1S188FM
D2025	G2090118	Schottky Barrier 1SS97
D2028	G2015550	Si 1S1555
D2002,2003, 2009–2013, 2033–2035, 2038–2040, 2043–2049	G2090027	" 1SS53
D2001	G2090180	Varactor FC53M-5
		CRYSTAL
X2002	H0102514	HC-18/U3P 11.205MHz
X2001	H0102513	HC-18/U3P 11.265MHz
		THERMISTOR
TH2001	G9090001	SDT250
		CRYSTAL FILTER
XF2001	H1101980	108M15A
XF2002	H1102075	XF-10.7LW
		CERAMIC FILTER
CF2004	H3900071	LF-B20
CF2003	H3900040	LF-C2A
CF2001	H3900204	LF-H15S
		CERAMIC DISCRIMINATOR
CD2001	H7900040/60	SFD455S4/455DW-8
		RESISTOR
R2010,2012,2013, 2020,2025,2068, 2070,2076,2082, 2083,2087,2088, 2093,2094	J02245560	Carbon film 1/4W SJ 56Ω
R2038,2046,2098, 2121,2129,2134, 2137	J02245101	" " " " 100Ω
R2034,2125	J00215101	" " 1/8W VJ 100Ω
R2145,2185	J02245101	Carbon film 1/4W SJ 100Ω
R2008,2067,2081	J02245151	" " " " 150Ω
R2024,2051,2109	J02245221	" " " " 220Ω
R2032,2049	J02245471	" " " " 470Ω
R2202	J01245471	" " 1/8W TJ 470Ω
R2151,2186	J02245681	" " 1/4W SJ 680Ω
R2011,2018,2037, 2075,2179,2138, 2095	J02245102	" " " " 1kΩ
R2123,2127	J00215152	" " 1/8W VJ 1.5kΩ
R2007,2036,2066, 2080,2119	J02245152	" " 1/8W SJ 1.5kΩ
R2001,2014,2026, 2039,2040,2052, 2056,2057,2059, 2060,2062,2085, 2092,2099,2117, 2146,2150	J02245222	" " " " 2.2kΩ
R2028,2142, 2143	J02245332	" " " " 3.3kΩ
R2003	J02245392	" " " " 3.9kΩ
R2041,2050,2115, 2165,2192,2199	J02245472	" " " " 4.7kΩ
R2002,2023,2029, 2042,2043,2130, 2144,2153,2181	J02245562	" " " " 5.6kΩ
R2128	J00215682	" " 1/8W VJ 6.8kΩ
R2136	J02245822	" " 1/4W SJ 8.2kΩ
R2031,2110,2135, 2147,2162,2173, 2193	J02245103	" " " " 10kΩ
R2111,2158,2161, 2177	J02245153	" " " " 15kΩ
R2126	J00215153	" " 1/8W VJ 15kΩ
R2004,2017,2022, 2030,2045,2058, 2061,2090,2091, 2112,2118,2120, 2149,2164,2166, 2167–2169, 2171,2172,2174, 2178,2184	J02245223	" " 1/4W SJ 22kΩ
R2009,2016,2122, 2124	J00215223	" " 1/8W VJ 22kΩ
R2064,2078	J02245273	" " 1/4W SJ 27kΩ
R2027,2096,2105, 2107,2132,2148, 2182,2194	J02245473	" " " " 47kΩ
R2201	J01215823	" " 1/8W TJ 82kΩ
R2191	J00215104	" " 1/8W VJ 100kΩ
R2005,2015,2033, 2063,2077,2089, 2106,2133,2140, 2141,2195, 2198	J02245104	" " 1/4W SJ 100kΩ
R2035,2044,2065, 2097,2108,2116, 2139	J02245224	" " " " 220kΩ
R2048,2170	J02245274	" " " " 270kΩ
R2113,2131,2175, 2176	J02245334	" " " " 330kΩ
R2114,2163	J02245474	" " " " 470kΩ
R2157	J02245105	" " " " 1MΩ
		POTENTIOMETER
	J51745472	H0651A011-4.7KB 4.7kΩB
VR2001,2002, 2004,2005,2007, 2008	J51745103	H0651A013-10KB 10kΩB
VR2006	J51745223	H0651A015-22KB 22kΩB
VR2003	J51745473	H0651A017-47KB 47kΩB

		CAPACITOR
C2016	K00172020	Ceramic 50WV SL 2pF (DD104SL020C50V)
C2081	K02179003	〃 〃 CH 2pF (DD104CK020C50V)
C2017	K00172050	〃 〃 SL 5pF (DD104SL050C50V)
C2002,2049,2112, 2126	K00173100	〃 〃 〃 10pF (DD104SL100D50V)
C2063	K00175150	〃 〃 〃 15pF (DD104SL150J50V)
C2010	K06175180	〃 〃 UJ 18pF (DD104UJ180J50V)
C2059,2086	K00175270	〃 〃 SL 27pF (DD104SL270J50V)
C2003	K00175470	〃 〃 〃 47pF (DD104SL470J50V)
C2068	K00175101	〃 〃 〃 100pF (DD105SL101J50V)
C2012,2013	K06175221	〃 〃 UJ 220pF (DD109UJ221J50V)
C2026	K00175221	〃 〃 SL 220pF (DD107SL221J50V)
C2069,2079, 2139	K00175331	〃 〃 〃 330pF (DD107SL331J50V)
C2082,2083	K06179018	〃 〃 UJ 330pF (DD110UJ331J50V)
C2115	K10176471	〃 〃 〃 470pF (DD104B471K50V)
C2008,2039,2053, 2062,2078,2097, 2104,2124,2149	K12171102	〃 〃 E 0.001μF (DD104F102P50V)
C2014,2058,2070, 2084,2113,2121, 2134	K13179008	〃 〃 F 0.01μF (DD106F103Z50V)
C2021,2024,2034, 2064,2101,2140	K19149001	Semiconductor Ceramic 25WV 0.001μF (UAT04X102K-L05AE)
C2004,2114	K19149005	〃 〃 0.0022μF (UAT04X222K-L05AE)
C2140	K19149009	〃 〃 0.0047μF (UAT05X472K-L05AE)
C2100	K19149011	〃 〃 0.0068μF (UAT05X682K-L05AE)
C2022,2025,2046, 2047,2074,2129, 2136–2138, 2153,2156	K19149013	〃 25WV 0.01μF (UAT05X103K-L05AE)
C2146,2147	K19149017	〃 〃 0.022μF (UAT06X223K-L45AE)
C2038	K19149019	〃 〃 0.033μF (UAT06X333K-L45AE)
C2001, 2005–2007, 2009, 2018–2020, 2023, 2027–2032, 2037, 2043–2045, 2048, 2050–2052, 2054,2060,2061, 2065–2067, 2071,2073,2075, 2077,2080,2085, 2087,2089,2092, 2105–2111, 2117,2118,2120, 2123,2131,2135, 2142,2148,2152, 2159	K19149021	〃 〃 0.047μF (UAT08X473K-L45AE)

C2099,2141	K70167104	Tantalum 35WV (CS15E1V0R1M)	0.1μF
C2144	K70120002	〃 16WV (489D106X0016C1)	10μF
C2145,2154	K40179002	Electrolytic 50WV (ECE-A1HK0R1)	0.1μF
C2035,2036,2076, 2093,2098,2102, 2116,2122,2128, 2133,2155	K40179001	〃 〃 (ECE-A1HK010)	1μF
C2132,2144	K40129015	〃 16WV (ECE-A1CK4R7)	4.7μF
C2033,2040,2072, 2103,2119,2127, 2130,2143,2150, 2151,2157	K40129012	〃 〃 (ECE-A1CK100)	10μF
C2158	K40109002	〃 10WV (10RE47)	47μF
		INDUCTOR	
L2001	L1190029	FL5H-470K	47μH
L2010	L1190016	FL5H-101K	100μH
L2007	L1190038	FL5H-271K	270μH
L2002,2003	L1190040	S4-1MH	1mH
L2005,2006,2011	L1190090	LAL04NA102K	1mH
		TRANSFORMER	
T2001–2003	L0021161		
T2004,2009–2011	L0190094		
T2005	L0021258		
T2006,2014–2016	L0021162		
T2007,2008	L0020188		
T2012	L0021257		
		RELAY	
RL2001	M1190002	FBR211AD012M	
		CONNECTOR	
J2001–2003, 2007,2008,2013	P0090041	5048-03A	
J2004	P0090050	5048-04A	
J2005,2009	P0090042	5048-05A	
J2010	P0090051	5048-06A	
J2006	P0090054	5048-07A	
J2012	P0090352	3022-03A	
		PLUG	
P2001 (with wire)	T9204522		
		TP TERMINAL	
	Q5000036	TP-G	
		FERRITE BEADS	
FB2001	L9190001	Ri 3x3x1	

CONTROL UNIT

Symbol No.	Part No.	Description
PB-2439B	F0002439B	Printed Circuit Board
	C024390A	PCB with Components
		IC
Q3012	G1090027	MC14001B
Q3014,3020	G1090068	MC14011B
Q3021	G1090067	MC14013B
Q3009,3015–3017	G1090126	MC14069UB
Q3019	G1090492	MC14072B
Q3018	G1090053	MC14081B
Q3007	G1090490	MC14503B
Q3008	G1090491	MC14515B
Q3011	G1090501	SN7416N
Q3025–3027	G1090488	μPA80C
Q3023	G1090299	μPC7805H
Q3002,3003	G1090227	μPD5101LC
Q3001	G1090489	μPD7801G-090
Q3005	G1090406	μPD8255AC-5
Q3004	G1090405	μPD8279C-5
		TRANSISTOR
Q3010,3013,3022, 3024	G3309451P	2SC945AP
Q3028	G3313830R	2SC1383R
Q3029	G3320020L	2SC2002L
Q3006	G3408920Q	2SD892Q
		DIODE
D3001–3010, 3014–3017, 3019–3029, 3031,3033,3034	G2090027	Si 1SS53
D3012,3013	G2090118	Schottky Barrier 1SS97
D3032	G2090177	Zener HZ3B2
D3011	G2090218	" HZ9C1
D3030	G2090143	" HZ11B1
		CERAMIC RESONATOR
X3001	H7900110	CSA 4.00MT
		BUZZER
BZ3001	M4290003	PZS-22A
		LITHIUM BATTERY
BAT3001	Q9000106	CR2025
		RESISTOR
R3062	J10276829	Carbon Composition 1/2W GK 8.2Ω
R3071	J20336560	Metallic film 2W 56Ω
R3044,3049,3061	J02245271	Carbon " 1/4W SJ 270Ω
R3064	J02245122	" " " " 1.2kΩ
R3012,3013,3023	J02245222	" " " " 2.2kΩ
R3002,3003,3047, 3048,3069	J02245472	" " " " 4.7kΩ
R3005,3022,3043	J02245103	" " " " 10kΩ
R3045,3056, 3065–3068,3074	J02245103	Carbon film 1/4W SJ 10kΩ
R3070	J02245153	" " " " 15kΩ
R3001,3004,3006, 3011,3024	J02245223	" " " " 22kΩ
R3073	J01215223	" " 1/8W TJ 22kΩ
R3015–3017, 3046,3050, 3052–3055,3057 3063	J02245473	" " 1/4W SJ 47kΩ
	J02245563	" " " " 56kΩ
R3031–3034	J02245823	" " " " 82kΩ
R3014,3018,3021, 3042,3059	J02245104	" " " " 100kΩ
R3072	J01215104	" " 1/8W TJ 100kΩ
R3019,3020, 3025–3028,3058	J02245334	" " 1/4W SJ 330kΩ
R3060	J02245474	" " " " 470kΩ
R3008,3010,3041	J02245105	" " " " 1MΩ
R3029,3035,3038, 3039	J02245155	" " " " 1.5MΩ
R3007,3009,3030, 3036,3037,3040	J02245335	" " " " 3.3MΩ
		BLOCK RESISTOR
RB3003	J40900021	RA 3.3kΩ-8A 3.3Kx8
RB3001	J40900050	EXB-P86-473K 47Kx6
RB3002	J40900032	EXB-P88-104K 100Kx8
		POTENTIOMETER
VR3001	J50714103	V8K-1-1B 10kΩ
		CAPACITOR
C3006,3007	K00179007	Ceramic 50WV SL 30pF (DD104SL300J50V)
C3019,3020-3022	K00175101	" " " 100pF (DD105SL101J50V)
C3004,3005,3009, 3029	K12171102	" " E 0.001μF (DD104E102P50V)
C3001 3003, 3010,3012,3013, 3024,3025,3027, 3033,3035,3039, 3041	K14180103	" 63WV FZ 0.01μF (RD871-1FZ-103Z63V)
C3045	K13179008	" 50WV F 0.01μF (DD106F103Z50V)
C3023,3026, 3030–3032,3043	K14170473	" " FZ 0.047μF (DD111FZ473Z50V)
C3008	K19149025	Semiconductor Ceramic 25WV 0.1μF (UAT13X104K-L46AE)
C3037	K50177102	Mylar 50WV 0.001μF (50F2U102M)
C3044	K70167104	Tantalum 35WV 0.1μF (CS15E1V0R1M)
C3028	K40179010	Electrolytic 50WV 0.47μF (50RER47)
C3040	K40149008	" 25WV 10μF (25RE10)
C3011,3034,3042	K40129004	" 16WV 10μF (16RE10)
C3038	K40179014	" 50WV 10μF (50RE10)

C3014	K40089003	Electrolytic 6.3WV 47μF (ECE-A0JK470)
		TRANSFORMER
T3001	L3030101	
		CONNECTOR
J3013	P0090351	3094-02A
J3008	P0090050	5048-04A
J3009	P0090042	5048-05A
J3007	P0090051	5048-06A
J3003,3011	P0090054	5048-07A
J3006,3012	P0090037	5048-08A
J3002,3005	P0090072	5048-09A
J3004,3010	P0090038	5048-12A
J3001	P0090036	5048-14A
		SWITCH
S3001	N6090037	SSS312
		TERMINAL BOARD
	Q6000003	1L2PS (1-0-1)

SATELLITE UNIT (OPTION)

Symbol No.	Part No.	Description
PB-2455A	F0002455A	Printed Circuit Board
	C024550A	PCB with Components
		IC
Q4019	G1090296	HD10551
Q4026,4027	G1090343	MC14094BCP
Q4038	G1090501	SN7416N
Q4030	G1090473	TC5081AP
Q4029	G1090239	TC5082P
Q4028	G1090247	TC9122P
Q4037	G1090084	μPC78L05
Q4007,4020,4022	G1090101	μPC1037H
		TRANSISTOR
Q4001,4002,4012, 4014,4015,4034	G3107331Q	2SA733AQ
Q4003,4009,4010, 4024	G3304600B	2SC460B
Q4018,4023,4025	G3305350B	2SC535B
Q4006,4008,4032, 4033,4035,4036, 4039	G3309451P	2SC945AP
		FET
Q4031	G3800301Y	2SK30AY
Q4016	G3801921G	2SK192AGR
Q4017,4021	G3802410Y	2SK241Y
		DIODE
D4018,4019	G201588	Si 1S1588
D4001–4004, 4004–4017, 4020–4022, 4024–4027	G2090027	Si 1SS53
D4032–4034	G2090027	Si 1SS53
D4031	G2090107	Varactor 1T25
D4006	G2090180	" FC53M-5
D4007	G2090041	Varistor MV103
D4008	G2090188	Zener HZ5C1
		CRYSTAL
X4001	H0100511	HC-18/U 10.7015MHz
X4002	H0100512	HC-18/U 10.6985MHz
X4003	H0102510	HC-18/U 10.700MHz
X4004	H0102512	HC-18/U 10.6992MHz
X4005	H0102515	HC-18/U 6.4713MHz
X4006	H0102503	HC-18/U 4.5056MHz
		THERMISTOR
TH4001	G9090016	33D28
		CRYSTAL FILTER
XF4001	H1102064	XF-10.7LS
		RESISTOR
R4066	J02245100	Carbon film 1/4W SJ 10Ω
R4009,4021,4081, 4089,4093	J02245560	" " " " 56Ω
R4031,4033,4048, 4055,4070,4074, 4083,4087,4104, 4108,4117,4128	J02245101	" " " " 100Ω
R4025,4041,4072, 4085	J02245221	" " " " 220Ω
R4037,4069	J02245331	" " " " 330Ω
R4020,4077,4079, 4095,4103,4107	J02245471	" " " " 470Ω
R4115,4126	J02245561	" " " " 560Ω
R4008,4019,4026, 4040,4044,4102, 4114,4116	J02245102	" " " " 1kΩ
	J02245122	" " " " 1.2kΩ
R4080,4112,4120	J02245152	" " " " 1.5kΩ
R4094	J02245182	" " " " 1.8kΩ
R4032,4057	J02245222	" " " " 2.2kΩ
R4111,4113	J02245272	" " " " 2.7kΩ
R4049,4056,4076, 4082,4097–4099	J02245332	" " " " 3.3kΩ
R4067	J02245392	" " " " 3.9kΩ
R4028,4119,4122	J02245472	" " " " 4.7kΩ
R4005–4007	J02245562	" " " " 5.6kΩ
R4078	J02245682	" " " " 6.8kΩ
R4054,4058,4062, 4064,4110,4118, 4124,4125	J02245103	" " " " 10kΩ
R4038,4039,4042, 4043,4050,4052, 4053,4096,4100, 4106,4109	J02245223	" " " " 22kΩ
R4036	J02245333	" " " " 33kΩ
R4001–4004, 4023,4024,4035, 4059,4063,4065, 5071,4084,4101, 4105,4129	J02245473	" " " " 47kΩ

R4034,4121	J02245563	Carbon film 1/4W SJ 56kΩ
R4017,4018,4022, 4029,4051,4068, 4123,4127	J02245104	" " " " 100kΩ
R4092	J02245154	" " " " 150kΩ
R4030	J02245224	" " " " 220kΩ
R4075	J02245334	" " " " 330kΩ
		POTENTIOMETER
VR4005	J51745223	H0651A015-22KB 22kΩB
VR4004	J51745104	H0651A019-100KB 100kΩB
		CAPACITOR
C4065,4104,4107	K00172010	Ceramic 50WV SL 1pF (DD104SL010C50V)
C4062	K02172020	" " CH 2pF (DD104CH020C50V)
C4027	K06172040	" " UJ 4pF (DD104UJ040J50V)
C4053,4054	K05173060	" " RH 6pF (DD104RH060D50V)
C4057	K06173060	" " UJ 6pF (DD104UJ060J50V)
C4078	K00173060	" " SL 6pF (DD104SL060D50V)
	K02173060	" " CH 6pF (DD104CH060D50V)
C4093	K00173070	" " SL 7pF (DD104SL070D50V)
C4055,4085	K02173090	" " CH 9pF (DD104CH090D50V)
C4056	K02173100	" " " 10pF (DD104CH100D50V)
C4018	K00173100	" " SL 10pF (DD104SL100D50V)
C4086	K02175120	" " CH 12pF (DD104CH120J50V)
C4099,4103,4105	K05175120	" " RH 12pF (DD104RH120J50V)
C4146	K00175120	" " SL 12pF (DD104SL120J50V)
C4109,4122	K00175150	" " " 15pF (DD104SL150J50V)
C4092	K06175150	" " UJ 15pF (D104UJ150J50V)
C4073	K00175180	" " " 18pF (DD104SL180J50V)
C4087	K02175180	" " CH 18pF (DD104CH180J50V)
C4001,4002,4032, 4059	K06175220	" " " 22pF (DD104UJ220J50V)
C4102	K00175220	" " SL 22pF (DD104SL220J50V)
C4106	K00175330	" " " 33pF (DD104SL330J50V)
C4088,4123,4124	K02179013	" " CH 33pF (DD104CH330J50V)
C4016,4036,4115, 4117	K00175470	" " SL 47pF (DD104SL470J50V)
C4052	K06175470	" " UJ 47pF (DD104UJ470J50V)
C4071	K00175560	" " SL 56pF (DD104SL560J50V)

C4083	K00175680	Ceramic 50WV SL 68pF (DD104SL680J50V)
C4075	K00175820	" " " 82pF (DD104SL820J50V)
C4095	K06175101	" " UJ 100pF (DD106UJ101J50V)
C4076,4097,4116, 4135	K00175101	" " SL 100pF (DD105SL101J50V)
C4070	K00179015	" " " 110pF (DD105SL111J50V)
C4003,4004,4094	K06175151	" " UJ 150pF (DD107UJ151J50V)
C4079,4143	K00175151	" " SL 150pF (DD106SL151J50V)
C4028,4029,4033, 4034	K06175181	" " UJ 180pF (DD107UJ181J50V)
C4145	K00175221	" " SL 220pF (DD107SL221J50V)
C4072,4074	K00179020	" " " 240pF (DD107SL241J50V)
C4026,4044	K12171102	" " E 0.001μF (DD104E102P50V)
C4022,4031,4035, 4037,4038,4045, 4058,4061,4063, 4064, 4066–4068, 4081,4084, 4089–4091, 4096,4098,4100, 4101,4108, 4110–4112, 4114,4118,4120, 4121,4125,4133, 4136,4140	K14180103	" " FZ 0.01μF (RD871-1FZ-103Z63V)
C4005,4017,4019, 4020,4039,4042, 4046,4048,4049, 4077,4080,4082, 4113,4127,4130, 4132,4138,4147	K19149021	Semiconductor Ceramic 50WV 0.047μF (UAT08X473K-L45AE)
C4129	K54200001	Polycarbonate 100WV 1μF (B32561A1105J)
C4013	K40179002	Electrolytic 50WV 0.1μF (ECE-A1HK0R1)
	K40179005	" " 0.47μF (ECE-A1HKR47)
C4015,4023,4025, 4141,4142	K40179001	" " 1μF (ECE-A1HK010)
C4014	K40129015	" 16WV 4.7μF (ECE-A1CK4R7)
C4024,4030,4050, 4051,4060,4069, 4119,4126,4128, 4131,4134,4137	K40129012	" " 10μF (ECE-A1CK100)
C4043,4139	K40129013	" " 22μF (ECE-A1CK220)
C4148	K40109003	" 10WV 330μF (10RE330)
		TRIMMER CAPACITOR
TC4005,4006	K91000055	ECV-1ZW 06x53N 6pF
TC4007	K91000028	ECV-1ZW 10x53 10pF
TC4001–4003	K91000029	ECV-1ZW 20x53 20pF
		INDUCTOR
L4002	L0190017	E521GN-110053
L4004,4009	L1020680	
L4003	L1190010	

L4010,4011	L1190070	
L4008	L1190029	
L4006	L1190030	
L4007	L1190031	
L4005,4012,4013	L1190016	
		TRANSFORMER
T4001	L0021354	
T4002	L0021164	
T4003	L0020612	
T4004,4005	L0020782	
T4006 - 4008	L0020825	
		CONNECTOR
J4001,4004,4006	P0090041	5048-03A
J4003	P0090042	5048-05A
J4002	P0090051	5048-06A
J4005	P0090072	5048-09A
		TP TERMINAL
TP4001 - 4003	Q5000036	TP-G

PS UNIT

Symbol No.	Part No.	Description
		TRANSISTOR
Q601	G3407170O	2SD717O
		DIODE
D601	G2090022	Si S5VB10

AVR UNIT

Symbol No.	Part No.	Description
PB-2463	F0002463	Printed Circuit Board
	C024630A	PCB with Components
		TRANSISTOR
Q701	G3304960Y	2SC496Y
Q702	G3309451P	2SC945AP
		DIODE
D701	G2090001	Si 10D1
D702	G2090113	Zener HZ6B2
		RESISTOR
R701	J01245471	Carbon film 1/4W TJ 470Ω
R702 – 705	J01245102	" " " " 1kΩ
		POTENTIOMETER
VR701	J51745471	H0651A005-470B 470ΩB

		CAPACITOR
C703,704,706	K13179008	Ceramic 50WV F 0.01μF (DD106F103Z50V)
C702	K40169002	Electrolytic 35WV 470μF (35RE470)
C701	K40169011	" " 1000μF (35RE1000)
C707	K42140004	" 25WV 18000μF (25LP18000)
		FUSE HOLDER
FH701	P2000003	F3265
		FUSE
F701	Q0000005	5A
		TP TERMINAL
	Q5000036	TP-G

ACCESSORIES

Symbol No.	Part No.	Description
		AC CORD
	T9013280	DC-546-007 2 wire, 2 prong plug
	T9013282	UD-904-016 3 wire, 3 prong UL plug
	T9013284	EC-407-007 3 wire, 2 prong EU plug
	T9013283	SC-411-001 3 wire, 3 prong Australian plug
		FUSE
	Q0000003	2A 100V-117VAC
	Q0000002	1A 200V-234VAC
		PLUG
	P0090034	C-107
	P1090042	QS-P4-FK

50MHz MODULE (OPTION)

✶✶✶ 50MHz RF UNIT ✶✶✶

Symbol No.	Part No.	Description
PB-2450	F0002450	Printed Circuit Board
	C002450A	PCB with Components
		FET
Q5003,5012	G3801250	2SK125
Q5004,5005	G3802410Y	2SK241Y
Q5002	G4800510C	3SK51-03
Q5006	G4800730Y	3SK73Y
Q5001	G4800740L	3SK74L

		TRANSISTOR
Q5009	G3107331Q	2SA733AQ
Q5007	G3304600B	2SC460B
Q5008	G3320530	2SC2053
Q5010,5011	G3404710L	2SD471L
		DIODE
D5007,5008,5014, 5016,5018,5019, 5023	G2090027	Si 1SS53
D5017	G2090118	Schottky Barrier 1SS97
D5015	G2015540	Si 1S1554
D5006	G2090023	Varactor 1SV50
D5002–5005, 5009–5003,5022	G2090107	" 1T25
D5001	G9090006	Varistor MV13
D5021	G2090003	Si V06B
D5020	G2090218	Zener HZ9C1
		THERMISTOR
TH5001	G9090008	31D26
TH5002	G9090013	25D29
TH5003	G9090001	SDT250
		CRYSTAL FILTER
XF5001	H1102021	108M30B
		RESISTOR
R5053,5054	J01245229	Carbon film 1/4W TJ 2.2Ω
R5019	J01245100	" " " " 10Ω
R5044	J02245220	" " " SJ 22Ω
R5007,5018,5024,	J02245560	" " " " 56Ω
R5016,5021,5023 5059	J01245560	" " " TJ 56Ω
R5005,5031,5022	J02245101	" " " SJ 100Ω
R5013,5055	J02245151	" " " " 150Ω
R5042,5047	J02245221	" " " " 220Ω
R5002,5060	J01215102	" " 1/8W TJ 1kΩ
R5006,5025,5040, 5043,5050,5051, 5056,5062	J02245102	" " 1/4W SJ 1kΩ
R5046	J02245122	" " " " 1.2kΩ
	J01215152	" " 1/8W TJ 1.5kΩ
R5020,5022	J02245222	" " 1/4W SJ 2.2kΩ
R5064,5065	J02245682	" " " " 6.8kΩ (50MHz UNIT)
R5041	J02245822	" " " " 8.2kΩ
R5015,5038,5049	J02245103	" " " " 10kΩ
R5037	J01245103	" " " TJ 10kΩ
R5036	J02245223	" " " SJ 22kΩ
R5003,5011,5012, 5027,5028	J02245473	" " " " 47kΩ
R5001, 5008–5010, 5014,5029,5030, 5032–5034, 5039,5057,5058	J02245104	" " " " 100kΩ
R5035	J01245104	" " " TJ 100kΩ
R5004	J02245225	" " " SJ 2.2MΩ
		POTENTIOMETER
VR5003	J51745471	H0651A005-470B 470Ω(B)
VR5004	J51745103	H0651A013-10KB 10kΩ(B)
VR5006	J51745223	H0651A015-22KB 22kΩ(B)
VR5005	J51745473	H0651A017-47KB 47kΩ(B)

		CAPACITOR
C5051	K02182059	Ceramic 50WV CH 0.5pF (RD870-1NPO-0R5C63V)
C5001,5013,5020, 5051	K02179001	Ceramic 50WV CH 1pF (DD104CK010C50V)
C5011,5016,5018, 5033	K02179003	" " " 2pF (DD104CK020C50V)
C5039,5040	K00173100	" " SL 10pF (DD104SL100D50V)
C5015,5048,5054, 5071	K00175220	" " " 22pF (DD104SL220J50V)
C5024	K00175330	" " " 33pF (DD104SL330J50V)
C5076	K00175390	" " " 39pF (DD104SL390J50V)
C5004,5060	K00175470	" " SL 47pF (DD104SL470J50V)
C5003,5012,5017, 5019	K06179009	" " UJ 56pF (DD104UJ560J50V)
C5027	K06185820	" " UJ 82pF (RD871-1N750-820J63V)
C5079	K00175820	" " SL 82pF (DD104SL820J50V)
C5050,5052,5059, 5063,5066	K00175101	" " SL 100pF (DD105SL101J50V)
C5044	K06175121	" " UJ 120pF (DD107UJ121J50V)
C5104	K10186221	" 63WV " 220pF (RD870-1B221K63V)
C5045,5103	K10176102	" " B 0.001μF (DD104B102K50V)
C5025,5034,5038, 5078,5081,5086, 5088,5099,5101, 5105	K12171102	" 50WV E 0.001μF (DD104E102P50V)
C5001, 5005–5010, 5014,5021,5023, 5026, 5029–5032, 5035,5037, 5041–5043, 5055,5057, 5061,5062,5064, 5065, 5067–5069, 5073 5075, 5080,5082,5083, 5085,5087,5091, 5092, 5094–5098, 5100,5102,5106	K13179008	" " F 0.01μF (DD106F103Z50V)
C5022,5056	K40179013	Electrolytic " 1μF (50RE1)
C5072,5077,5090, 5093	K40129004	" 16WV 10μF (16RE10)
C5089	K40109001	" 10WV 100μF (10RE100)
C5084	K40129019	" 16WV 1000μF (16RC1000)
		TRIMMER CAPACITOR
TC5001	K91000028	ECV-1ZW 10x53 10pF
TC5002	K91000017	ECV-1ZW 70x32 70pF
		INDUCTOR
L5001	L1190009	FL4H-3R3M 3.3μH
L5002,5003	L1190138	LAL04NA100K 10μH
L5004	L1190014	FL4H-100K 10μH
L5005	L1020680	
L5006	L0020340	

(50MHz MODULE)

L5007	L1020673	
L5008	L1020683	
L5009	L0020724	
		TRANSFORMER
T5001-5005, 5011,5012-5015	L0020825	
T5006,5007	L0021162	
T5008-5010	L0021161	
		RELAY
RL5001	M1190006	FBR221D012M
		CONNECTOR
J5003	P0090041	5048-03A
J5004	P0090042	5048-05A
J5001	P0090051	5048-06A
J5002	P0090189	5049-11A
J5005,5006	P1090255	TMP-JA

*** * * 50MHz PLL UNIT * * ***

Symbol No.	Part No.	Description
		PLL BOARD
PB-2447A	F0002447A	Printed Circuit Board
	C024470A	PCB with Components (w/VCO Board) Model F
	C024470B	" Model A
		VCO BOARD
PB-2442	F0002442	Printed Circuit Board
	C024420A	PCB with Q6001,D6001-6003, R6001-6003,TH6001,C6001-6004,6006-6013,TC6002, L6001-6006
		IC
Q6021	G1090342	MB84024B
Q6023	G1090053	MC14081B
Q6025	G1090343	MC14094B
Q6028	G1090312	MC14504B
Q6024	G1090298	MC14560B
Q6005	G1090012	SN16913P
Q6016	G1090062	SN76514N
Q6009	G1090473	TC5081AP
Q6008	G1090247	TC9122P
Q6027	G1090084	μPC78L05
Q6032	G1090294	μPC7808H
		FET
Q6002,6004	G3802410Y	2SK241Y
Q6001	G3801921G	2SK192AGR
Q6003	G4800730Y	3SK73Y
		TRANSISTOR
Q6019	G3105641	2SA564A
Q6013	G3304600B	2SC460B
Q6017	G3305350B	2SC535B
Q6006,6007, 6010-6012, 6014,6015,6018, 6020,6026,6029, 6030	G3309451P	2SC945AP
Q6022,6031	G3408920Q	2SD892Q
		DIODE
D6003, 6005-6010, 6012-6015, 6017,6018,6021, 6023,6025	G2090027	Si 1SS53
D6001,6002,6004	G2090023	Varactor 1SV50
D6011,6016	G2090003	Si V06B
		THERMISTOR
TH6001	G9090008	31D26
		CRYSTAL
X6001	H0102509	HC-18/U-3P 27.4035MHz
X6002	H0102338	HC-18/U 6.4MHz
		RESISTOR
R6005,6007,6014, 6018,6019,6024, 6051	J02245560	Carbon film 1/4W SJ 56Ω
R6003	J00245101	" " 1/8W VJ 100Ω
R6012,6040,6045, 6050,6057	J02245101	" " 1/4W SJ 100Ω
R6053,6086	J01245101	" " " TJ 100Ω
R6083	J01215101	" " 1/8W " 100Ω
R6031	J02245221	" " 1/4W SJ 220Ω
R6002,6085	J02245331	" " " " 330Ω
	J01245471	" " " TJ 470Ω
R6084	J02245561	" " " SJ 560Ω
R6020,6027	J02245681	" " " " 680Ω
R6025,6041,6044, 6046,6049,6056	J02245102	" " " " 1kΩ
R6039	J02245122	" " " " 1.2kΩ
R6015,6029,6032, 6033,6052	J02245222	" " " " 2.2kΩ
R6021	J02245332	" " " " 3.3kΩ
R6063	J02245392	" " " " 3.9kΩ
R6009,6026,6036	J02245472	" " " " 4.7kΩ
R6034	J01245472	" " " TJ 4.7kΩ
R6028,6043,6048, 6055	J02245562	" " " SJ 5.6kΩ
R6060,6072	J02245103	" " " " 10kΩ
R6035,6037,6038, 6042,6047,6054, 6061,6062,6066, 6073,6076,6080, 6081	J02245223	" " " " 22kΩ
R6082	J01215223	" " 1/8W TJ 22kΩ
R6030	J02245273	" " 1/4W SJ 27kΩ
R6087	J01215393	" " 1/8W TJ 39kΩ
R6010,6011	J02245473	" " " " 47kΩ
R6071	J02245563	" " " " 56kΩ
R6004,6008,6013, 6016,6023,6058, 6059,6064,6065, 6067-6070, 6074,6079	J02245104	" " " " 100kΩ
R6075	J01245104	" " " TJ 100kΩ
R6077,6078	J02245224	" " " SJ 220kΩ

R6022	J02245334	Carbon film 1/4W SJ 330kΩ
R6001	J02245474	" " " " 470kΩ
		BLOCK RESISTOR
RB6001	J40900022	DA-1
RB6002	J40900023	DA-2
		CAPACITOR
C6055	K00179001	Ceramic 50WV SL 0.5pF (DD104SL0R5C50V)
C6017,6018	K00172010	" " " 1pF (DD104SL010C50V)
C6014,6077	K02179003	" " CH 2pF (DD104CK020C50V)
C6085	K00172020	" " SL 2pF (DD104SL020C50V)
C6056	K00172040	" " " 4pF (DD104SL040C50V)
C6076	K02173060	" " CH 6pF (DD104CH060D50V)
C6027	K00173080	" " SL 8pF (DD104SL080J50V)
C6012	K06173080	" " UJ 8pF (DD104UJ080D50V)
C6003	K06175150	" " " 15pF (DD104UJ150J50V)
C6008	K02175150	" " CH 15pF (DD104CH150J50V)
C6083	K05175150	" " RH 15pF (DD104RH150J50V)
C6078,6079,6086	K05175180	" " " 18pF (DD104RH180J50V)
C6053,6054	K05175220	" " " 22pF (DD104RH220J50V)
C6004	K02175270	" " CH 27pF (DD104CH270J50V)
C6011	K06175270	" " UJ 27pF (DD104UJ270J50V)
C6007	K02175330	" " CH 33pF (DD104CH330J50V)
C6032,6035	K00175330	" " SL 33pF (DD104SL330J50V)
C6092	K06175330	" " UJ 33pF (DD104UJ330J50V)
C6048,6049	K06175470	" " " 47pF (DD104UJ470J50V)
C6057,6060,6081	K00175470	" " SL 47pF (DD104SL470J50V)
C6047	K06179009	" " UJ 56pF (DD105UJ560J50V)
C6034,6075	K00175680	" " SL 68pF (DD104SL680J50V)
C6021	K06185820	" " UJ 82pF (RD871-1N750-820J63V)
C6099	K00175101	" " " 100pF (DD105SL101J50V)
C6093,6096	K00175151	" " " 150pF (DD106SL151J50V)
C6001,6002,6006, 6013,6019,6033, 6036,6037,6040, 6041,6070,6072, 6074,6090,6097	K10176102	" " B 0.001μF (DD104B102K50)
C6009,6015,6016, 6020, 6023–6026	K13179008	" " F 0.01μF (DD106F103Z50V)

C6028–6031, 6045,6046, 6050–6052, 6067–6069, 6071,6073,6080, 6082,6084,6095, 6104,6106–6113	K13179008	Ceramic 50WV F 0.01μF (DD106F103Z50V)
C6038,6042,6058, 6059, 6061–6065,6094, 6114	K19149021	Semiconductor Ceramic 25WV 0.047μF (UAT-08X473K-L45AE)
C6044	K54200001	Polycarbonate 100WV 1μF (B32561A1105J)
C6088	K70167474	Tantalum 35WV 0.47μF (CS15E1VR47M)
C6066	K70140007	" 25WV 1μF (489D105X0025A1)
C6043	K70120006	" 16WV 3.3μF (489D335X0016B1)
C6087	K70120002	" " 10μF (489D106X0016C1)
C6091,6105	K40179002	Electrolytic 50WV 0.1μF (ECE-A1HK-0R1)
C6098	K40179001	" " 1μF (ECE-A1HK-010)
C6089,6101,6102	K40149011	" 25WV 4.7μF (ECE-A1EK4R7)
C6039,6103	K40129012	" 16WV 10μF (ECE-A1CK100)
C6010	K40109001	" 10WV 100μF (10RE100)
		TRIMMER CAPACITOR
TC6002	K91000055	ECV1ZW 06x53N 6pF
TC6003	K91000029	ECV1ZW 20x53 20pF
		INDUCTOR
L6008	L1020680	
L6013	L1190089	LAL04NA1R0M 1μH
L6006	L1190143	FL3H-3R3M 3.3μH
L6014	L1190009	FL4H-3R3M 3.3μH
L6001–6004	L1190110	FL3H-4R7K 4.7μH
L6009,6010	L1190014	FL4H-100K 10μH
L6015	L1190025	FL5H-330K 33μH
L6012	L1190017	FL5H-102K 1mH
		TRANSFORMER
T6001	L0020825	
T6002	L0021352	
T6003,6004	L0020919	
T6005,6006	L0020782	
T6007	L0190013	
T6008–6011	L0190011	
		RELAY
RL6001	M1190002	FBR211AD012M
		CONNECTOR
J6004	P0090041	5048-3A
J6002	P0090097	5049-5A
J6003	P0090051	5048-6A
J6001	P0090100	5049-12A

(50MHz MODULE)

		TP TERMINAL
	Q5000036	TP-G
	Q5000020	MS-60121

* * * 50MHz PA UNIT * * *

Symbol No.	Part No.	Description
PB-2451	F0002451	Printed Circuit Board
	C024510A	PCB with Components
		POWER MODULE
Q7001	G1090475	M57735
		DIODE
D7002	G2015880	Si 1S1588
D7001	G2090003	" V06B
		RESISTOR
R7003	J30356019	Cement 3W 0.1Ω
R7004	J02245222	Carbon film 1/4W 2.2kΩ
		CAPACITOR
C7015	K02179003	Ceramic 50WV CH 2pF (DD104CK020C50V)
C7011	K02175120	" " " 12pF (DD104CH120J50V)
C7029	K00175330	" " SL 33pF (DD104SL330J50V)
C7013,7016–7018	K00175470	" " SL 47pF (DD104SL470J50V)
C7012,7026	K00175560	" " " 56pF (DD104SL560J50V)
C7014	K00175101	" " " 100pF (DD105SL101J50V)
C7001–7003, 7005,7007,7009. 7010,7019,7020	K10176102	" " B 0.001μF (DD104B102K50)
C7021–7025	K21170002	Feed through 0.001μF (ECKY1H-102WE)
C7004,7006,7008	K40129012	Electrolytic 16WV 10μF (16RC2-10)
		INDUCTOR
L7001	L1020673	
L7002	L1020663	
L7004–7006	L0020824	
L7003	L0020679	
		RELAY
RL7001	M1190006	FBR221D012M
		CONNECTOR
J7001	P1090192	FM-MR
J7002	P1090005	SG-8050
		PLUG
P7001(with wire)	T9204523	
P7002(")	T9307001	

P7003(with wire)	T9307002	
		TP TERMINAL
	Q5000036	TP-G

144MHz MODULE

* * * 144MHz RF UNIT * * *

Symbol No.	Part No.	Description
PB-2452	F0002452	Printed Circuit Board
	C024520A	PCB with Components
		FET
Q5003,5011	G3801250	2SK125
Q5004,5005	G3802410Y	2SK241Y
Q5002	G4800510C	3SK51-03
Q5006	G4800700	3SK70
Q5001	G4800740L	3SK74L
		TRANSISTOR
Q5008	G3107331Q	2SA733AQ
Q5007	G3325380	2SC2538
Q5009,5010	G3404710L	2SD471L
		DIODE
D5013	G2015550	Si 1S1555
D5007,5008, 5014–5015,5018, 5020	G2090027	" 1SS53
D5016	G2090118	Schottky Barrier 1SS97
D5002–5006, 5009–5012	G2090107	Varactor 1T25
D5001	G9090006	Varistor MV13
D5019	G2090003	Si V06B
D5017	G2090218	Zener HZ9C1
		THERMISTOR
TH5001	G9090013	25D29
TH5002	G9090008	31D26
TH5003	G9090002	D22A
TH5004	G9090001	SDT250
		CRYSTAL FILTER
XF5001	H1102021	108M30B
		RESISTOR
R5047,5048	J01245229	Carbon film 1/4W TJ 2.2Ω
R5019	J01245100	" " " " 10Ω
R5003,5005,5013, 5018,5023	J02245560	" " " SJ 56Ω
R5016,5021,5025	J01245560	" " " TJ 56Ω
R5039	J01215560	" " 1/8W " 56Ω
R5030	J02245101	" " 1/4W SJ 100Ω
R5041	J01215101	" " 1/8W TJ 100Ω
R5049	J02245151	" " 1/4W SJ 150Ω
R5024	J02245271	" " " " 270Ω
R5038	J01215331	" " 1/8W TJ 330Ω
R5051	J01215102	" " " " 1kΩ

R5004,5044,5045	J02245102	Carbon film 1/4W SJ 1kΩ
R5040	J01215122	" " 1/8W TJ 1.2kΩ
R5050	J01215152	" " " " 1.5kΩ
R5020,5046	J02245222	" " 1/4W SJ 2.2kΩ
R5015,5037,5043	J02245103	" " " " 10kΩ
R5036	J01215103	" " 1/8W TJ 10kΩ
R5035	J02245223	" " 1/4W SJ 22kΩ
R5001,5011,5012, 5026,5027	J02245473	" " " " 47kΩ
R5009,5022	J01245473	" " " TJ 47kΩ
R5006–5008, 5010,5014,5028, 5029,5031–5033	J02245104	" " " SJ 100kΩ
R5034	J01215104	" " 1/8W TJ 100kΩ
R5002	J02245225	" " 1/4W SJ 2.2MΩ
		BLOCK RESISTOR
RB6002	J40900023	DA-2
		POTENTIOMETER
VR5003	J51745102	H0651A007-1KB 1kΩB
VR5004	J51745103	H0651A013-10KB 10kΩB
VR5006	J51745223	H0651A015-22KB 22kΩB
VR5005,5006	J51745473	H0651A017-47KB 47kΩB
		CAPACITOR
C5017	K02182059	Ceramic 63WV CH 0.5pF (RD870-1NPO-0R5C63V)
C5012,5024,5054, 5061	K02179001	" 50WV " 1pF (DD104CK010C50V)
C5015,5019,5030, 5049,5052,5056	K02179003	" " " 2pF (DD104CK020C50V)
C5009	K02172040	" " CH 4pF (DD104CH040C50V)
C5011,5016,5018, 5025	K05173080	" " RH 8pF (DD104RH080D50V)
C5053,5055,5062	K02173080	" " CH 8pF (DD104CH080D50V)
C5002	K02173100	" " " 10pF (DD104CH100D50V)
C5029	K05173100	" " RH 10pF (DD104RH100J50V)
C5003,5051,5057, 5074	K02175120	" " CH 12pF (DD104CH120J50V)
C5014,5023	K05175120	" " RH 12pF (DD104RH120J50V)
C5047,5048	K02175150	" " CH 15pF (DD104CH150J50V)
C5026	K02179009	" " " 22pF (DD104CH220J50V)
C5063	K00175470	" " SL 47pF (DD104SL470J50V)
C5075,5103	K02175470	" " CH 47pF (DD106CH470J50V)
C5067	K02175560	" " " 56pF (DD106CH560J50V)
C5001,5064, 5066,5068,5070	K10176102	" " B 0.001μF (DD104B102K50)
C5005,5013, 5027,5031,5036, 5040,5040,5058, 5076–5079, 5081–5084, 5089–5096,5098	K12171102	" " E 0.001μF (DD104E102P50V)
C5004,5006,5008, 5010,5020,5022, 5028, 5032–5034, 5037,5039, 5044–5046,5060	K13179008	" " F 0.01μF (DD106F103Z50V)
C5065,5071,5087, 5088,5097	K13179008	Ceramic 50WV F 0.01μF (DD106F103Z50V)
C5021,5059	K40179013	Electrolytic " 1μF (50RE1)
C5038	K40129004	" 16WV 10μF (16RE10)
C5069,5072,5086	K40129012	" " 10μF (16RC2-10)
C5085	K40109001	" 10WV 100μF (10RE100)
C5080	K40129019	" 16WV 1000μF (16RC1000)
		TRIMMER CAPACITOR
TC5001	K91000028	ECV-1ZW 10x53T 10pF
TC5002	K91000029	ECV-1ZW 20x53T 20pF
		INDUCTOR
L5002,5003	L1190089	LAL04NA1R0M 1μH
L5001	L1190004	FL4HR68M 0.68μH
L5004	L0021355	
L5005,5008	L0021356	
L5006	L1020673	
L5007	L0021357	
		TRANSFORMER
T5001	L0021353	
T5002–5006, 5012–5015	L0020907	
T5007,5008–5010	L0021162	
T5011	L0021161	
		CONNECTOR
J5001	P0090051	5048-06A
J5002	P0090189	5049-11A
J5003	P0090041	5048-03A
J5004	P0090042	5048-05A
J5005,5006	P1090255	TMP-JA
		RELAY
RL5001	M1190006	FBR221D012M
		FERRITE BEADS
FB5001	L9190001	Ri 3x3-1

★ ★ ★ 144MHz PLL UNIT ★ ★ ★

Symbol No.	Part No.	Description
PB-2447A	F0002447A	Printed Circuit Board
	C024471A	PCB with Components (w/VCO Board) Model A
	C024471B	" Model X
	C024471C	" Model B
	C024471D	" Model C
	C024471E	" Model D
	C024471F	" Model E
	C024471G	" Model F

(144MHz MODULE)

PB-2442	F0002442	Printed Circuit Board
	C024421A	PCB with Q6001,D6001 D6003,R6000 R6003,TH6001, C6001 C6013,TC6001,6002, L6001 - L6006
		IC
Q6021	G1090342	MB84024B
Q6023	G1090053	MC14081B
Q6025	G1090343	MC14094B
Q6028	G1090312	MC14504B
Q6024	G1090298	MC14560B
Q6005	G1090012	SN16913P
Q6016	G1090062	SN76514N
Q6009	G1090473	TC5081AP
Q6008	G1090247	TC9122P
Q6027	G1090084	μPC78L05
Q6032	G1090294	μPC7808H
		FET
Q6001	G3801921G	2SK192AGR
Q6002,6004	G3802410Y	2SK241Y
Q6003	G4800730Y	3SK73Y
		TRANSISTOR
Q6019	G3105641	2SA564A
Q6013	G3304600B	2SC460B
Q6017	G3305350B	2SC535B
Q6006,6007, 6010-6012, 6014,6015,6018, 6020,6026,6029, 6030	G3309451P	2SC945AP
Q6022,6031	G3408920Q	2SD892Q
		DIODE
D6003, 6005–6010, 6012–6015, 6017,6018, 6018–6020, 6024–6026	G2090027	Si 1SS53
D6001,6002,6004	G2090107	Varactor 1T25
D6011,6016	G2090003	Si V06B
		CRYSTAL
X6001	H0102508	HC-18/U3P 60.7018MHz
X6002	H0102338	HC-18/U 6.4MHz
		THERMISTOR
TH6001	G9090008	31D26
		RESISTOR
R6005,6007,6014, 6018,6019,6024, 6051	J02245560	Carbon film 1/4W SJ 56Ω
R6003	J00215101	" " 1/8W VJ 100Ω
R6015,6040,6045, 6050,6057	J02245101	" " 1/4W " 100Ω
R6053	J01245101	" " " TJ 100Ω
R6083	J01215101	" " 1/8W " 100Ω

R6031	J02245221	Carbon film 1/4W SJ 220Ω
R6002	J02245331	" " " " 330Ω
R6085	J02245331	" " " " 330Ω
R6086	J01245471	" " " TJ 470Ω
R6020,6027	J02245681	" " 1/4W SJ 680Ω
R6025,6041,6044, 6046,6049,6056	J02245102	" " " " 1kΩ
R6015,6029,6032, 6033,6052	J02245222	" " " " 2.2kΩ
R6039	J02245272	" " " " 2.7kΩ
R6021	J02245332	" " " " 3.3kΩ
R6063	J02245392	" " " " 3.9kΩ
R6009,6026,6036	J02245472	" " " " 4.7kΩ
R6034	J01245472	" " " TJ 4.7kΩ
R6028,6043,6048, 6055	J02245562	" " " SJ 5.6kΩ
R6060,6072	J02245103	" " " " 10kΩ
R6035,6037,6038, 6042,6047,6054, 6061,6062,6066, 6073,6076,6080, 6081	J02245223	" " " " 22kΩ
R6082	J01215223	" " 1/8W TJ 22kΩ
R6030	J02245273	" " 1/4W SJ 27kΩ
R6087	J01215393	" " 1/8W TJ 39kΩ
R6010,6011	J02245473	" " " SJ 47kΩ
R6071	J02245563	" " " " 56kΩ
R6004,6008,6013, 6016,6023,6058, 6059,6064,6065, 6067-6070, 6074,6079	J02245104	" " " " 100kΩ
R6075	J01245104	" " " TJ 100kΩ
R6077,6078	J02245224	" " " SJ 220kΩ
R6022	J02245334	" " " " 330kΩ
R6001	J02245474	" " " " 470kΩ
		BLOCK RESISTOR
RB6001	J40900022	DA-1
		CAPACITOR
C6055,6077,6085	K00179001	Ceramic 50WV SL 0.5pF (DD104SL0R5C50V)
C6017,6018,6027	K00172010	" " " 1pF (DD104SL010C50V)
C6007,6022	K02179003	" " CH 2pF (DD104CK020C50V)
C6002,6003	K06172040	" " UJ 4pF (DD104UJ040J50V)
C6074	K02172040	" " CH 4pF (DD104CH040C50V)
C6004,6012,6014	K02172050	" " " 5pF (DD104CH050C50V)
C6005	K02173070	" " " 7pF (DD104CH070D50V)
C6008	K02173080	" " " 8pF (DD104CH080D50V)
C6021,6075,6078, 6079,6083,6086	K05173100	" " RH 10pF (DD104RH100D50V)
C6076	K02173100	" " CH 10pF (DD104CH100D50V)
C6053,6054	K05175120	" " RH 12pF (DD104RH120J50V)
C6011	K06175150	" " UJ 15pF (DD104UJ150J50V)
C6032,6035,6081	K00175330	" " SL 33pF (DD104SL330J50V)

(144MHz MODULE)

C6048,6092	K06175330	Ceramic 50WV UJ 33pF (DD104UJ330J50V)
C6049	K06175470	" " " 47pF (DD104UJ470J50V)
C6057,6060	K00175470	" " SL 47pF (DD104SL470J50V)
C6034	K00175680	" " " 68pF (DD104SL680J50V)
C6099	K00175101	" " " 100pF (DD105SL101J50V)
C6093,6096	K00175151	" " " 150pF (DD106SL151J50V)
C6001,6006,6013	K10176102	" " B 0.001μF (DD104B102K50V)
C6019,6033,6036, 6037,6040,6041, 6056,6070,6072, 6090,6097,6112, 6113	K12171102	" " E 0.001μF (DD104E102P50V)
C6009,6015,6016, 6020, 6023–6026, 6028–6031, 6045,6046, 6050–6052, 6067–6069, 6071,6073,6080, 6082,6084,6095, 6104,6106–6111 6115	K13179008	" " F 0.01μF (DD106F103Z50V)
C6038,6042,6058, 6059, 6061–6065,6094, 6114	K19149021	Semiconductor Ceramic 25WV 0.047μF (UAT-08X473K-L45AE)
C6044	K54200001	Polycarbonate 100WV 1μF (B32561A1105J)
C6088	K70167474	Tantalum 35WV 0.47μF (CS15E1VR47M)
C6066	K70140007	" 25WV 1μF (489D105X0025A1)
C6043	K70120006	" " 3.3μF (489D335X0016B1)
C6087	K70120002	" 16WV 10μF (489D106X0016C1)
C6091,6105	K40179002	Electrolytic 50WV 0.1μF (ECE-A1HK0R1)
C6098,6100	K40179001	" " 1μF (ECE-A1HK1R0)
C6089,6101,6102	K40149011	" 25WV 4.7μF (ECE-A1EK4R7)
C6039,6103	K40129012	" 16WV 10μF (ECE-A1CK100)
C6010	K40109001	" 10WV 100μF (10RE100)
		TRIMMER CAPACITOR
TC6001,6002	K91000056	ECV1ZW 06x53T 6pF
TC6003	K91000029	ECV-1ZW 20x53T 20pF
		INDUCTOR
L6006	L1190108	FL3H-R68M 0.68μH
L6014	L1190004	FL4H-R68M 0.68μH
L6001–6004	L1190129	FL3H1R0M 1μH
L6013	L1190089	LAL04NA1R0M 1μH
L6009,6010	L1190014	FL4H-100K 10μH
L6015	L1190025	FL5H-330K 33μH
L6012	L1190017	FL5H-102K 1mH
L6007,6008	L1020680	

		TRANSFORMER
T6001,6003,6004, 6007–6011	L0020907	
T6002	L0020533	
T6005,6006	L0020782	
		RELAY
RL6001	M1190002	FBR211AD012M
		CONNECTOR
J6004	P0090041	5048-03A
J6002	P0090097	5049-05A
J6003	P0090051	5048-06A
J6001	P0090100	5049-12A
		TP TERMINAL
	Q5000036	TP-G

★ ★ ★ 144MHz PA UNIT ★ ★ ★

Symbol No.	Part No.	Description
PB-2451	F0002451	Printed Circuit Board
	C024511A	PCB with Components
		POWER MODULE
Q7001	G1090295	M57713
		DIODE
D7002	G2090118	Schottky barrier 1SS97
D7001	G2090003	Si V06B
		RESISTOR
R7003	J30356019	Cement 3W 0.1Ω
R7004	J02245222	Carbon film 1/4W SJ 2.2kΩ
		CAPACITOR
C7015	K02179003	Ceramic 50WV CH 2pF (DD104CK020C50V)
C7012,7013, 7016–7018	K02175150	" " " 15pF (DD104CH150J50V)
C7011	K02175180	" " " 18pF (DD104CH180J50V)
C7014	K02179012	" " " 30pF (DD105CH300J50V)
C7001–7003, 7005,7007,7009, 7010,7019,7020	K10176102	" " B 0.001μF (DD104B102K50V)
C7021–7025	K21170002	Feed thru " 0.001μF (ECKY1H-102WE)
C7026,7027	K13179009	Ceramic 50WV F0.047μF (DD110F473Z50V)
C7004,7006,7008	K40129012	Electrolytic 16WV 10μF (16RC2-10)

		INDUCTOR
L7001	L1020673	
L7002	L1020663	
L7003	L0020678	
L7004–7006	L0020679	
		RELAY
RL7001	M1190006	FBR221D012M
		CONNECTOR
J7001	P1090192	FM-MR
J7002	P1090005	SG8050
		PLUG
P7001 (with wire)	T9204523	
		TP TERMINAL
	Q5000036	TP-G
	Q5000020	MS-60121
		CONNECTION CABLE
P7505	T9204527A	
P7506	T9204527A	
P7507	T9204529A	

430MHz MODULE (OPTION)

* * * 430MHz RF UNIT * * *

Symbol No.	Part No.	Description
PB-2453A	F0002453A	Printed Circuit Board
	C024530A	PCB with Components
		TRANSISTOR
Q5013	G3107331Q	2SA733AQ
Q5015,5016	G3304600B	2SC460B
Q5012	G3314260	2SC1426
Q5014	G3320260	2SC2026
Q5011	G3324070	2SC2407
		FET
Q5002,5010	G3801250	2SK125
Q5006,5007	G3802410Y	2SK241Y
Q5005	G4800510C	3SK51-03
Q5004,5008	G4800730Y	3SK73Y
Q5001	G4801210	3SK121
		QUAD DIODE
Q5003	G2090247	ND487C1-3R
Q5009	G2090135	ND487C2-3R
		DIODE
D5004,5005	G2015550	Si 1S1555
D5001–5003, 5006,5008,5012, 5013	G2090027	〃 1SS53

D5007,5014	G2090118	Schottky Barrier 1SS97
D5010,5011	G2090033	PIN MI301
D5009	G2090003	Si V06B
		CRYSTAL
X5001	H0102507	HC-18/U3P 56.805MHz
		THERMISTOR
TH5001,5002	G9090008	31D26
TH5003	G9090001	SDT250
		CRYSTAL FILTER
XF5001	H1102072	XF-67JX 67.615MHz
		RESISTOR
R5007,5033	J01215150	Carbon film 1/8W TJ 15Ω
R5014,5018, 5021,5022 5026,5037,5058, 5062,5063	J02245560	〃 〃 1/4W SJ 56Ω
R5023	J01245560	〃 〃 〃 TJ 56Ω
R5019	J01215560	〃 〃 1/8W TJ 56Ω
R5043	J01215680	〃 〃 〃 〃 68Ω
R5022,5052	J02245101	〃 〃 1/4W SJ 100Ω
R5031	J01215101	〃 〃 1/8W TJ 100Ω
R5001,5013	J02245151	〃 〃 1/4W SJ 150Ω
R5002,5067,5068	J00215151	〃 〃 1/8W VJ 150Ω
R5006,5034	J01215271	〃 〃 〃 TJ 270Ω
R5017	J02245271	〃 〃 1/4W SJ 270Ω
R5041,5065	J01215331	〃 〃 1/8W TJ 330Ω
R5008,5032	J01215561	〃 〃 〃 〃 560Ω
R5044	J02245681	〃 〃 1/4W SJ 680Ω
R5053	J01215681	〃 〃 1/8W TJ 680Ω
R5047,5048,5061	J02245102	〃 〃 1/4W SJ 1kΩ
R5070,5073	J01215102	〃 〃 1/8W TJ 1kΩ
R5042	J02245122	〃 〃 1/4W SJ 1.2kΩ
R5066,5038	J00215152	〃 〃 1/8W VJ 1.5kΩ
R5012,5072	J02245152	〃 〃 1/4W SJ 1.5kΩ
R5020,5049,5057, 5064	J02245222	〃 〃 〃 〃 2.2kΩ
	J01215272	〃 〃 1/8W TJ 2.7kΩ
R5054	J02245472	〃 〃 1/4W SJ 4.7kΩ
R5060	J02245562	〃 〃 〃 〃 5.6kΩ
R5046	J02245103	〃 〃 〃 〃 10kΩ
R5009,5028,5059,	J02245223	〃 〃 〃 〃 22kΩ
R5015,5016,5024, 5025,5030,5055, 5056	J02245473	〃 〃 〃 〃 47kΩ
R5029	J01215473	〃 〃 1/8W TJ 47kΩ
R5071	J01215563	〃 〃 〃 〃 56kΩ
R5010	J02245104	〃 〃 1/4W SJ 100kΩ
R5027	J01215104	〃 〃 1/8W TJ 100kΩ
R5011	J02245225	〃 〃 1/4W SJ 2.2MΩ
		POTENTIOMETER
VR5003	J51745102	H0651A007-1KB 1kΩB
VR5004	J51745103	H0651A013-10KB 10kΩB
VR5006	J51745223	H0651A015-22KB 22kΩB
VR5005	J51745473	H0651A017-47KB 47kΩB
		CAPACITOR
C5010	K00172010	Ceramic 50WV SL 1pF (DD104SL010C50V)

C5024	K00172020	〃 〃 〃 2pF (DD104SL020C50V)
	K02179003	〃 〃 CH 2pF (DD104CK020C50V)
C5006,5009,5045,5047,5076	K02179004	〃 〃 〃 3pF (DD104CH030C50V)
C5001	K02172040	〃 〃 〃 4pF (DD104CH040C50V)
C5048	K02173070	〃 〃 〃 7pF (DD104CH070D50V)
C5029,5030,5052	K02173080	〃 〃 〃 8pF (DD104CH080D50V)
C5002	K02173090	〃 〃 〃 9pF (DD104CH090D50V)
C5018,5070,5071	K02173100	〃 〃 〃 10pF (DD104CH100D50V)
C5022	K00173100	〃 〃 SL 10pF (DD104SL100D50V)
C5034	K00175120	〃 〃 SL 12pF (DD104SL120J50V)
C5021,5084	K05175150	〃 〃 RH 15pF (DD104RH150J50V)
C5079	K06175330	〃 〃 UJ 33pF (DD104UJ330J50V)
	K00175330	〃 〃 SL 33pF (DD104SL330J50V)
C5005,5008,5014,5035,5044,5074	K00175470	〃 〃 SL 47pF (DD104SL470J50V)
C5080	K06175470	〃 〃 UJ 47pF (DD104UJ470J50V)
C5003,5004,5007,5025,5019,5026,5028,5039–5043,5049,5050,5053,5055,5056,5059,5061–5064,5066–5068,5072,5073,5075,5078,5082,5089–5092,5094,5095,5098	K12171102	〃 〃 E 0.001μF (DD104E102P50V)
C5012,5013,5015–5017,5020,5023,5025,5027,5031–5033,5036–5038,5057,5060,5069,5081,5083,5085–5087,5093,5097	K13179008	〃 〃 F 0.01μF (DD106F103Z50V)
C5099,5101	K23170020	Chip 〃 0.001μF (GR40W5R102M50V)
C5051,5054,5058,5096	K40129012	Electrolytic 16WV 10μF (16RC2-10)
C5065	K40129019	〃 〃 1000μF (16RC1000)
		TRIMMER CAPACITOR
TC5001	K91000060	ECV-1ZW 02x53 2pF
TC5002	K91000059	ECV-1ZW 04x53 4pF
TC5003	K91000055	ECV-1ZW 06x53N 6pF
		INDUCTOR
L5023	L1190004	FL4H-R68M 0.68μH
L5006,5007,5012	L1190089	LAL04NA1R0M 1μH
L5001	L0020472	
L5002,5021,5025	L0020852	

L5003,5005,5008,5009,5011,5018,5020	L1020673	
L5004,5010,5015,5019	L0021359	
L5013	L1020672	
L5014	L0020903	
L5016	L0020474	
L5017	L0020900	
L5024	L0020342	
		CAVITY
CV5004	Q9000214	CV370
CV5001–5003	Q9000114B	CV441B
		TRANSFORMER
T5001,5002,5012,5013	L0190007	
T5003,5004,5009–5011	L0021165	
T5005,5015	L0021358	
T5006–5008	L0021161	
T5014	L0020533	
		RELAY
RL5001	M1190006	FBR221D012M
		CONNECTOR
J5003	P0090041	5048-03A
J5001	P0090054	5048-07A
J5002	P0090189	5049-11A
J5004–5007	P1090255	TMP-JA
		TP TERMINAL
	Q5000016	TP-G

★ ★ ★ 430MHz PLL UNIT ★ ★ ★

Symbol No.	Part No.	Description
PB-2446A	F0002446A	Printed Circuit Board
	C024460A	PCB with Components (w/VCO Board) Model A
	C024460B	〃 〃 B
	C024460C	〃 〃 C
	C024460D	〃 〃 X
	C024460E	〃 〃 F
PB-2442A	F0002442	Printed Circuit Board
	C002442A	PCB with Q6001,D6001,6002,6018–6025,TH6001,R6001–6003,C6001–6010,TC6001,L6001–6004
		IC
Q6030	G1090053	MC14081B
Q6028	G1090343	MC14094B
Q6029	G1090312	MC14504B
Q6016	G1090496	MC145143P
Q6005,6014	G1090012	SN16913P

(430MHz MODULE)

Q6010	G1090473	TC5081AP
Q6009	G1090239	TC5082P
Q6008,6023	G1090247	TC9122P
Q6027	G1090084	μPC78L05
Q6033	G1090294	μPC7808H
		FET
Q6001,6017	G3801921G	2SK192AGR
Q6002,6004,6018, 6019	G3802410Y	2SK241Y
		TRANSISTOR
Q6011	G3107331Q	2SA733AQ
Q6013	G3304600B	2SC460B
Q6006,6007,6012, 6015, 6020–6022, 6024,6025,6032	G3309451P	2SC945AP
Q6003	G3320260	2SC2026
Q6026,6031	G3408920Q	2SD892Q
		DIODE
D6003,6004, 6006–6009, 6011–6016, 6018,6019, 6021–6025	G2090027	Si 1SS53
D6001,6002,6005	G2090107	Varactor 1T25
D6010,6017	G2090003	Si V06B
		CRYSTAL
X6001	H0102506	HC-18/U 8.5333MHz
X6002 (Model A,B,C)	H0102505	HC-18/U3P 57.4333MHz
X6002 (Model X)	H0102518	" 59.1000MHz
		THERMISTOR
TH6001,6002	G9090008	31D26
		POSISTOR
PTH6001	G9090019	PTH-2928
		RESISTOR
R6011	J01215100	Carbon film 1/8W TJ 10Ω
R6013	J01215150	" " " " 15Ω
R6005,6007,6017, 6039,6041,6053	J02245560	" " 1/4W SJ 56Ω
R6024,6025,6058, 6063,6066	J02245101	" " " " 100Ω
R6038	J01245101	" " " TJ 100Ω
R6003	J01215101	" " 1/8W TJ 100Ω
R6048	J00215101	" " 1/8W VJ 100Ω
R6010	J02245221	" " 1/4W SJ 220Ω
R6012,6014	J01215271	" " 1/8W TJ 270Ω
R6047	J00215331	" " " VJ 330Ω
R6002	J02245331	" " 1/4W SJ 330Ω
R6027	J02245391	" " " " 390Ω
R6085	J01245471	" " " TJ 470Ω
R6019	J02245681	" " " SJ 680Ω
R6023,6042,6044, 6054,6057,6059	J02245102	" " " " 1kΩ

R6062,6067	J02245102	Carbon film 1/4W SJ 1kΩ
R6037	J02245182	" " " " 1.8kΩ
R6009,6064	J02245222	" " " " 2.2kΩ
R6021	J02245332	" " " " 3.3kΩ
R6026,6028,6029, 6034,6043,6045	J02245472	" " " " 4.7kΩ
R6056,6061	J02245561	" " " " 5.6kΩ
R6008,6030,6032	J02245103	" " " " 10kΩ
R6084	J02245153	" " " " 15kΩ
R6035,6036,6055, 6060, 6068–6070, 6078,6079,6082	J02245223	" " " " 22kΩ
R6021	J01215223	" " 1/8W TJ 22kΩ
R6086	J01215393	" " " " 39kΩ
R6087	J00215473	" " " " 47kΩ
R6083	J02245563	" " 1/4W SJ 56kΩ
R6004,6015,6031, 6033,6049,6051, 6073,6076,6077, 6080,6081	J02245104	" " " " 100kΩ
R6072	J01245104	" " " TJ 100kΩ
R6022,6040,6065, 6074,6075	J02245224	" " " SJ 220kΩ
R6020	J02245334	" " " " 330kΩ
R6001	J02245474	" " " " 470kΩ
		CAPACITOR
C6015,6023,6090	K00179001	Ceramic 50WV SL 0.5pF (DD104SL0R5C50V)
C6061	K00172010	" " " 1pF (DD104SL010C50V)
C6086	K02179001	" " CH 1pF (DD104CK010C50V)
C6077	K02179003	" " " 2pF (DD104CK020C50V)
C6088	K00172020	" " SL 2pF (DD104SL020C50V)
C6114	K02179004	" " CH 3pF (DD104CH030C50V)
C6020	K02172040	" " " 4pF (DD104CH040C50V)
C6011	K02172050	" " " 5pF (DD104CH050C50V)
C6007,6081	K02173060	" " " 6pF (DD104CH060D50V)
C6002,6078*	K02173070	" " " 7pF (DD104CH070D50V)
C6078	K05173080	" " RH 8pF (DD104RH080D50V)
C6006,6080	K02173090	" " CH 9pF (DD104CH090D50V)
C6004,6005	K06173100	" " UJ 10pF (DD104UJ100D50V)
C6068	K00173100	" " SL 10pF (DD104SL100D50V)
C6003,6079	K02175120	" " CH 12pF (DD104CH120J50V)
	K05175120	" " RH 12pF (DD104RH120J50V)
C6041	K00175150	" " SL 15pF (DD104SL150J50V)
C6060,6062	K05175150	" " RH 15pF (DD104RH150J50V)
C6008,6082	K02175180	" " CH 18pF (DD104CH180J50V)

(* 440–450MHz)
(430MHz MODULE)

C6039	K00175220	Ceramic 50WV SL 22pF (DD104SL220J50V)
C6049	K00175330	" " " 33pF (DD104SL330J50V)
C6056	K06175330	" " UJ 33pF (DD104UJ330J50V)
C6029,6031,6089, 6092,6096,6117	K00175470	" " SL 47pF (DD104SL470J50V)
C6057	K06175470	" " UJ 47pF (DD104UJ470J50V)
C6030,6069,6070, 6113	K00175101	" " SL 100pF (DD105SL101J50V)
C6001,6019,6021	K10176102	" " B 0.001μF (DD104B102K50V)
C6028,6032,6033, 6036,6049,6051, 6063,6071,6072, 6100,6101,6112, 6115,6116	K12171102	" " E 0.001μF (DD104E102P50V)
C6009, 6012–6014, 6022, 6024–6027, 6037,6038,6045, 6046,6052,6053, 6055,6058,6059, 6073,6074,6076, 6083,6087,6091, 6102,6110	K13179008	" " F 0.01μF (DD106F103Z50V)
C6064–6067	K14180103	" 63WV FZ 0.01μF (RD871-1FZ103Z63V)
C6034,6043, 6093–6095, 6097–6099, 6119	K19149021	Semiconductor Ceramic 25WV 0.047μF (UAT08X473K-L45AE)
C6047	K70167474	Tantalum 35WV 0.47μF (CS15E1VR47M)
C6044,6075	K70140007	" 25WV 1μF (489D105X0025A1)
C6042	K70107335	" 10WV 3.3μF (CS15E1A3R3M)
C6050	K70100003	" " 10μF (489D106X0010B1)
C6109,6111	K40179002	Electrolytic 50WV 0.1μF (ECE-A1HK0R1)
C6106	K40179001	" " 1μF (ECE-A1HK010)
C6048,6104,6105	K40129015	" 16WV 4.7μF (ECE-A1CK4R7)
C6035,6054,6084, 6108	K40129012	" " 10μF (ECE-A1CK100)
C6103	K40109002	" 10WV 47μF (10RE47)
C6010	K40109001	" " 100μF (10RE100)
C6118	K40129021	" 16WV 1000μF (16R102S-13X16)
		TRIMMER CAPACITOR
TC6001,6003	K91000055	ECV1ZW 06x53N 6pF
TC6002	K91000029	ECV1ZW 20x53 20pF
		INDUCTOR
L6015	L1190004	FL4H-R68M 0.68μH
L6020	L1190108	FL3H-R68M 0.68μH
L6002,6018	L1190105	FL3H-1R0M 1μH
L6012	L1190014	FL4H-100K 10μH
L6013	L1190138	LAL04NA100K 10μH
L6008,6009	L1190015	FL5H-120K 12μH
L6010	L1190025	FL5H-330K 33μH
L6016	L1190029	FL5H-470K 47μH
L6017	L1190090	LAL04NA102K 1mH
L6003	L1090016	
L6004	L1190108	
L6005,6007,6021, 6022	L1020680	
L6006	L0020852	
L6014	L0020533	
L6019	L0190016	
		TRANSFORMER
T6002,6003	L0020907	
T6004,6005	L0020782	
		CAVITY
CV6001	Q9000214	CV-370
		RELAY
RL6001	M1190002	FBR211D012M
		CONNECTOR
J6001	P1090255	TMP-JA
J6002	P0090041	5048-03A
J6003	P0090097	5049-05A
J6004	P0090100	5049-12A
		TP TERMINAL
	Q5000036	TP-G
	Q5000020	MS-60121
	Q5000037	TP-H

★ ★ ★ 430MHz PA UNIT ★ ★ ★

Symbol No.	Part No.	Description
	F0002454	Printed Circuit Board
	C024540A	PCB with Components
		POWER MODULE
Q7001	G1090497	S-AU4
		DIODE
D7002	G2090118	Schottky Barrier 1SS97
D7001	G2090003	Si V06B
		RESISTOR
R7003	J30356019	Cement 3W 0.1Ω
R7004	J02245222	Carbon film 1/4W SJ 2.2kΩ
		CAPACITOR
	K02179001	Ceramic 50WV CH 1pF (DD104CK010C50V)
C7009,7013	K02179003	" " " 2pF (DD104K020C50V)
C7012	K02172050	" " " 5pF (DD104CH050C50V)

C7011,7016	K02173060	Ceramic 50WV CH 6pF (DD104CH060D50V)			
C7015	K02175120	" " " 12pF (DD104CH120J50V)			
C7001, 7003 - 7005, 7008,7014,7017, 7019,7026	K10176102	" " B 0.001μF (DD104B102K50V)			
C7020,7025	K21170002	Feed thru 0.001μF (ECKY1H-102WF)			
C7027,7028	K13179009	Ceramic 50WV F 0.047μF (DD110F473Z50V)			
C7002,7006,7007	K40129012	Electrolytic 16WV 10μF (16RC2-10)			
		INDUCTOR			
L7001,7002	L1020673				
L7003	L0020916				
L7004,7005	L0021273				
		RELAY			
RL7001	M1190044	G4Y152P			
		CONNECTOR			
J7001	P1090209	N-R			
J7001	P1090291	MR-10 (Model F)			
J7002	P1090005	SG8050			
		PLUG			
P7001 (with wire)	T9204542A				
P7503,7504	T9204526				
P7505	T9204527A				
P7506	T9204528A				
P7507	T9204529A				
		TP TERMINAL			
	Q5000036	TP-G			

21–28 MHz Module (OPTION)

Symbol No.	Part No.	Description
★★★ 21–28 MHz RF UNIT ★★★		
	F2539000	Printed Circuit Board
	C025390A	PCB with components
		IC
Q5021	G1090080	μPC78L08
Q5006	G2090135	ND487C2-3R
		FET
Q5007	G3801250	2SK125
Q5008,5011,5012	G3802410G	2SK241GR
Q5009,5010	G3802410Y	2SK241Y
Q5024	G4800510C	3SK51-03
Q5005	G4800740L	3SK74L
		TRANSISTOR
Q5020,5022	G3107331Q	2SA733AQ
Q5001,5002	G3304600B	2SC460B
Q5003	G3305350B	2SC535B
Q5019	G3318150Y	2SC1815GR
Q5013–5018	G3319730	2SC1973
Q5004	G3324070	2SC2407
		DIODE
D5006,5008,5010, 5012,5031,5032	G2015550	Si 1S1555
D5001–5005,5007, 5009,5011,5013, 5015–5030,5033, 5038,5039	G2090027	" 1SS53
D5037	G2090211	" V06C
D5034–5036	G2090118	Schottky barrier 1SS97
D5014	G9090007	Varistor MV12
		CRYSTAL
X5001	H0102546	HC-18/U3P 57.065MHz
		CRYSTAL FILTER
XF5001	H1102076	XF-46JX
		THERMISTOR
TH5001	G9090008	31D26
TH5002	G9090026	22D47
TH5003	G9090020	21D27
TH5004,5005	G9090001	SDT250
		RESISTOR
R5085,5086,5089, 5090	J02245229	Carbon film 1/4W SJ 2.2Ω
R5019,5075,5079, 5080	J02245470	" " " " 47Ω
R5004,5005,5009, 5011,5013,5016, 5020,5021,5032, 5045,5046,5049, 5051,5055,5058	J02245560	" " " " 56Ω
R5061,5065,5070	J02245560	Carbon film 1/4W SJ 56Ω
R5073,5083,5087	J02245680	" " " " 68Ω
R5076	J02245820	" " " " 82Ω
R5012,5015,5017, 5030,5069,5077	J02245101	" " " " 100Ω
R5064,5099	J01245101	" " " TJ 100Ω
R5050	J02245151	" " " SJ 150Ω
R5008	J02245221	" " " " 220Ω
R5078	J02245271	" " " " 270Ω
R5018,5042,5044	J02245471	" " " " 470Ω
R5084,5088	J02245681	" " " " 680Ω
R5082	J02245751	" " " " 750Ω
R5023–5026,5093	J02245102	" " " " 1kΩ
R5031	J02245152	" " " " 1.5kΩ
R5011,5021,5022, 5027,5033,5034, 5036,5038,5040, 5043,5052,5056, 5057,5066,5072, 5074	J02245222	" " " " 2.2kΩ
R5003,5014	J02245332	" " " " 3.3kΩ
R5035,5037,5097	J02245472	" " " " 4.7kΩ
R5007	J02245562	" " " " 5.6kΩ
R5047,5091,5098	J02245103	" " " " 10kΩ
R5039,5041	J02245153	" " " " 15kΩ
R5001,5002,5006, 5059,5060,5063, 5067,5094,5095	J02245223	" " " " 22kΩ
R5048,5096	J02245473	" " " " 47kΩ
R5028,5062	J02245104	" " " " 100kΩ
R5029	J02245225	" " " " 2.2MΩ
		BLOCK RESISTOR
RB5001	J40900010	RK1/16 B4R 10kΩx4
		POTENTIOMETER
VR5001,5002	J51752101	RGS6FAN 101 100ΩB
VR5003	J51745102	H0651A007-1KB 1kΩB
VR5006	J51745103	H0651A013-10KB 10kΩB
VR5005	J51745223	H0651A015-22KB 22kΩB
VR5004	J51745473	H0651A017-47KB 47kΩB
		CAPACITOR
C5055	K00172020	Ceramic disc 50WV SL 2pF (DD104SL020C50V)
C5098,5100,5105	K00172040	" " " " 4pF (DD104SL040C50V)
C5061	K00173060	" " " " 6pF (DD104SL060D50V)
C5101,5104,5106	K00173080	" " " " 8pF (DD104SL080D50V)
C5063,5064	K02173080	" " " CH 8pF (DD104CH080D50V)
C5052	K00173100	" " " SL 10pF (DD104SL100D50V)
C5102,5103	K00175120	" " " " 12pF (DD104SL120J50V)
C5099	K00175150	" " " " 15pF (DD104SL150J50V)
C5008,5051	K05175150	" " " RH 15pF (DD104RH150J50V)
C5134,5135	K00175180	" " " SL 18pF (DD104SL180J50V)

C5067	K00175220	Ceramic disc 50WV SL 22pF (DD104SL220J50V)
C5009,5010	K00175390	〃 〃 〃 SL 39pF (DD104SL390J50V)
C5047,5050,5056, 5068,5092,5133	K00175470	〃 〃 〃 〃 47pF (DD104SL470J50V)
C5001	K06175470	〃 〃 〃 UJ 47pF (DD104UJ470J50V)
C5002	K06179009	〃 〃 〃 UJ 56pF (DD104UJ560J50V)
C5018,5041,5042	K00175820	〃 〃 〃 SL 82pF (DD104SL820J50V)
C5071,5073	K00179013	〃 〃 〃 〃 91pF (DD105SL910J50V)
C5016,5019,5072, 5082	K00175121	〃 〃 〃 〃 120pF (DD105SL121J50V)
C5005,5011,5034, 5059,5062,5074, 5079,5111,5129, 5137	K10176102	〃 〃 〃 B 0.001μF (DD104B102K50V)
C5132	K10176222	〃 〃 〃 〃 0.0022μF (DD106B222K50V)
C5003,5004,5006, 5007,5013,5031, 5057,5076,5078, 5085,5089,5094, 5107,5108,5110, 5114–5116,5121, 5122,5125–5128, 5136,5138–5143	K13179008	〃 〃 〃 F 0.01μF (DD106F103Z50V)
C5012,5014,5017, 5020,5065,5066, 5070,5081,5083, 5086,5087	K13179010	〃 〃 〃 〃 0.022μF (DD108F223Z50V)
C5022,5024,5026, 5028–5030,5032, 5033,5036–5040, 5043–5046,5048, 5049,5053,5054, 5058,5060,5075, 5077,5080,5090, 5091,5096,5131	K13179009	〃 〃 〃 〃 0.047μF (DD110F473Z50V)
C5095	K70127225	Tantalum 16WV 2.2μF (CS15E1C2R2M)
C5128	K40179002	Electrolytic 50WV 0.1μF (ECE-A1HK0R1 50V)
C5021,5023,5025, 5027,5117	K40179013	〃 〃 1μF (50RE1)
C5015,5084,5124	K40129004	〃 16WV 10μF (16RE10)
C5088	K40089001	〃 6.3WV 100μF (6.3RE100)
C5097	K40129020	〃 16WV 100μF (16RC100)
C5109	K40129021	〃 〃 1000μF (16RS102S)
		TRANSFORMER
T5001,5014	L0021358	
T5002,5003	L0021313	
T5004	L0021312	
T5005	L0021311	
T5006,5007	L0021321	
T5008	L0021320	
T5009	L0021319	
T5010,5011	L0021351	

T5012,5013	L0021165		
T5015–5018	L0021161		
T5019–5021	L0021125A		
T5022	L0021379		
T5023	L0190007		
T5024	L0021378		
		INDUCTOR	
L5001	L0020533		
L5003	L0021384		
L5005,5006	L0021382		
L5010	L0021381		
L5013,5014	L0021383		
L5018	L0021388		
L5019	L0021387		
L5002	L1190108	FL3H-R68M	0.68μH
L5004,5007	L1190029	FL5H-470K	47μH
L5008,5009,5015, 5016	L1190014	FL4H-100K	10μH
L5011,5012	L1190113	FL3H-R22M	0.22μH
L5017	L1190008	FL4H-2R2M	2.2μH
L5020	L1190138	LAL04NA100K	10μH
L5021	L1190090	LAL04NA102K	1mH
		RELAY	
RL5001	M1190006	FBR221D012M	
		MINI CONNECTOR	
J5001	P0090189	5049-11A	
J5002	P0090042	5048-05A	
J5003	P0090054	5048-07A	
J5004	P0090050	5048-04A	
J5005–5007	P1090255	TMP-JA	
	Q5000036	TP TERMINAL	
	Q5000037	TP-G	
		TP-H	
	R0100590	HEAT SINK	
	★ ★ ★ 21–28 MHz PLL UNIT ★ ★ ★		
	F2540000	Printed Circuit Board	
	C025400A	PCB with components	
		IC	
Q6034	G1090088	MC14028B	
Q6031	G1090053	MC14081B	
Q6033	G1090343	MC14094B	
Q6032	G1090312	MC14504B	
Q6036	G1090496	MC145143P	
Q6012	G1090012	SN16913P	
Q6008	G1090062	SN76514N	
Q6035	G1090247	TC9122P	
Q6037	G1090084	μPC78L05	
Q6039	G1090080	μPC78L08	

		FET
Q6006	G3802410G G3803590	2SK241GR (or 2SK359)
		TRANSISTOR
Q6023,6024	G3107331Q	2SA733AQ
Q6001–6004	G3110050K	2SA1005K
Q6010,6011,6026	G3304600B	2SC460B
Q6025	G3304960Y	2SC496Y
Q6009	G3305350B	2SC535B
Q6013–6018,6022, 6027–6030	G3309451P	2SC945AP
Q6019–6021	G3318150G	2SC1815GR
Q6005	G3319230O	2SC1923-O
Q6007	G3324580Y	2SC2458Y
Q6038	G3090005	MPS-A13
		DIODE
D6005–6021	G2090027	Si 1SS53
D6022	G2090211	" V06C
D6001–6004	G2090271	Varactor 1T33
		CRYSTAL
X6001	H0102547	HC-18/U3P 58.4685MHz
X6002	H0102557	HC-18/U 8.00MHz
		RESISTOR
R6006,6010,6015, 6020	J02245100	Carbon film 1/4W SJ 10Ω
R6032,6037,6044, 6050,6091	J02245560	" " " " 56Ω
R6004,6009,6014, 6019,6021,6026, 6030,6042,6046, 6055,6060,6077	J02245101	" " " " 100Ω
R6079	J01245221	" " " TJ 220Ω
R6028	J02245331	" " " SJ 330Ω
R6023,6025,6031	J02245471	" " " " 470Ω
R6095	J02245561	" " " " 560Ω
R6048	J02245681	" " " " 680Ω
R6041,6043,6051, 6054,6056,6059	J02245102	" " " " 1kΩ
R6029,6092	J02245152	" " " " 1.5kΩ
R6033,6038,6093, 6094	J02245222	" " " " 2.2kΩ
R6022,6047,6096	J02245332	" " " " 3.3kΩ
R6036,6085	J02245472	" " " " 4.7kΩ
R6040,6052,6057	J02245562	" " " " 5.6kΩ
R6024,6027,6078, 6087	J02245103	" " " " 10kΩ
R6089	J02245123	" " " " 12kΩ
R6090	J02245153	" " " " 15kΩ
R6001,6006,6011, 6016	J01215223	" " 1/8W TJ 22kΩ
R6034,6035,6039, 6053,6058,6067, 6070,6072–6075, 6080–6084,6098	J02245223	" " 1/4W SJ 22kΩ
R6002,6003,6007, 6008,6012,6013, 6017,6018	J02245333	" " " " 33kΩ
R6076	J02245393	" " " " 39kΩ
R6077	J02245563	" " " " 56kΩ

R6045,6061–6064, 6068,6069,6071, 6086,6088,6089	J02245104	Carbon film 1/4W SJ 100kΩ
R6065,6066	J02245224	" " " " 220kΩ
R6049	J02245334	" " " " 330kΩ
R6099	J01215105	" " 1/8W TJ 1MΩ
		BLOCK RESISTOR
RB6001	J40900039	RA1/16K4R 100kΩx4
		CAPACITOR
C6049,6058	K00172010	Ceramic disc 50WV SL 1pF (DD104SL010C50V)
C6003	K00172020	" " " " 2pF (DD104SL020C50V)
C6008	K00172030	" " " " 3pF (DD104SL030C50V)
C6002,6007,6012, 6017,6023,6028	K06172030	" " " UJ 3pF (DD104UJ030C50V)
C6129	K06172040	" " " " 4pF (DD106UJ040C50V)
C6011	K02172040	" " " CH 4pF (DD104CH040C50V)
C6016	K02172050	" " " " 5pF (DD104CH050C50V)
C6013	K00173060	" " " SL 6pF (DD104SL060D50V)
C6018,6070	K00173080	" " " " 8pF (DD104SL080D50V)
C6001	K02173080	" " " CH 8pF (DD104CH080D50V)
C6009	K02173090	" " " " 9pF (DD104CH090D50V)
C6065,6067	K00175120	" " " SL 10pF (DD104SL120J50V)
C6047,6055	K05173100	" " " RH 10pF (DD104RH100D50V)
C6050,6051,6057	K05175120	" " " " 12pF (DD104RH120J50V)
	K00175120	" " " SL 12pF (DD104SL120J50V)
C6048	K00175150	" " " " 15pF (DD104SL150J50V)
C6005,6010,6015, 6020	K02175150	" " " CH 15pF (DD104CH150J50V)
C6064	K00175180	" " " SL 18pF (DD104SL180J50V)
C6069	K00175270	" " " " 27pF (DD104SL270J50V)
C6026,6027	K00175330	" " " " 33pF (DD104SL330J50V)
C6029,6038	K06175330	" " " UJ 33pF (DD104UJ330J50V)
C6109	K06175390	" " " " 39pF (DD104UJ390J50V)
C6037,6128	K06175470	" " " " 47pF (DD104UJ470J50V)
C6052,6078,6082	K00175470	" " " SL 47pF (DD104SL470J50V)
C6032,6035,6068	K00175560	" " " " 56pF (DD104SL560J50V)
C6066	K00175680	" " " " 68pF (DD104SL680J50V)
C6034,6092	K00175101	" " " " 100pF (DD105SL101J50V)

(21–28 MHz MODULE)

C6039,6042,6044, 6046,6059,6062, 6063,6071,6075, 6077	K10176102	Ceramic disc 50WV B 0.001μF (DD104B102K50V)
C6004,6009,6014, 6019,6022,6024, 6025,6030,6031, 6033,6036,6040, 6041,6043,6045, 6053,6054,6056, 6061,6072–6074, 6076,6087, 6095–6097,6100, 6110,6116,6117, 6119,6120,6123, 6130	K13179008	" " " F 0.01μF
C6101–6108	K14180103	" " " FZ 0.01μF (RD871-1FZ103Z50V)
C6118	K13179009	" " " F 0.047μF (DD110F473Z50V)
C6079–6081, 6083–6085,6093, 6094,6098,6114	K19149021	Semiconductor ceramic 25WV 0.047μF
C6126,6127	K21170002	Ceramic feed thru 50WV 0.001μF (ECK-Y1H102WE)
C6113	K54200001	Poly carbonate 100WV 1μF (B32561A-1105J)
C6111	K70120001	Tantalum 16WV 4.7μF (489D475X0016B1)
C6099	K70120002	" " 10μF (489D106X0016C1)
C6091,6121	K40179002	Electrolytic 50WV 0.1μF (ECE-A1HK0R1)
C6086,6124	K40179005	" " 0.47μF (ECE-A1HK-R47)
C6088,6089,6112	K40129015	" 16WV 4.7μF (ECE-A1CK4R7)
C6115	K40109002	" 10WV 47μF (10RE47)
C6021,6060,6090, 6122,6125	K40129004	" 16WV 10μF (16RE10)
		TRIMMER CAPACITOR
TC6001	J91000029	ECV-1ZW 20x53T 20pF
		TRANSFORMER
T6001–6004	L0021380	
T6005	L0020533	
T6006–6010	L0021358	
T6011,6012	L0020782	
		INDUCTOR
L6001	L1190022	FL5H-181K 180μH
L6002–6004	L1190113	FL3H-R22M 0.22μH
L6005	L1190108	FL3H-R68M 0.68μH
L6006	L1190016	FL5H-101K 100μH
L6007	L1190111	FL4H-5R6K 5.6μH
L6008	L1190011	FL4H-4R7K 4.7μH
L6009	L1190009	FL4H-3R3K 3.3μH
L6010,6012	L1190017	FL5H-102K 1mH
L6011	L1190025	FL5H-330K 33μH

		MINI CONNECTOR
J6001	P0090100	5049-12A
J6002	P0090097	5049-05A
J6003	P0090042	5048-05A
J6004	P0090050	5048-04A
J6005	P1090255	TMP-JA
		TP TERMINAL
	Q5000036	TP-G
	Q5000020	MS60121
	Q9000192	THERMAL CONDUCTOR for Q6025
	★★★ 21–28MHz PA UNIT ★★★	
	F2533000	Printed Circuit Board
	C0253330A	PCB with components
		TRANSISTOR
Q7002,7003	G3319450	2SC1945
Q7001	G3408820Q	2SD880Q
		DIODE
D7002	G2015550	Si 1S1555
D7003	G2090211	Si V06C
D7001	G9090017	Varistor MV11
		RESISTOR
R7003,7004	J10276150	Carbon composition 1/2W GK 15Ω
R7001,7002	J10276560	" " " " 56Ω
R7005	J10276101	" " " " 100Ω
R7007	J02245101	" film 1/4W SJ 100Ω
R7008	J02245222	" " " " 2.2kΩ
R7006	J30356019	Cement 3W 0.1Ω
		POTENTIOMETER
VR7001	J51745102	H0651A007-1KB 1kΩB
		CAPACITOR
C7008	K30276390	Dipped mica 500WV 39pF (LCQ12390K5)
C7034	K30276820	" " " 82pF (LCQ12820K5)
C7009,7010	K30276181	" " " 180pF (LCQ17181K5)
C7013	K30276271	" " " 270pF (LCQ17271K5)
C7029	K02179003	Ceramic disc 50WV 2pF (DD104CK020C50V)
C7030	K02175120	" " " 12pF (DD104CH120J50V)
C7002	K00175180	" " " SL 18pF (DD104SL180J50V)

C7007	K00175470	Ceramic disc 50WV SL 47pF (DD104SL470J50V)
C7001	K00175820	〃 〃 〃 82pF (DD104SL820J50V)
C7004,7006	K00179013	〃 〃 〃 〃 91pF (DD105SL910J50V)
C7014	K00175121	〃 〃 〃 〃 120pF (DD106SL121J50V)
C7003	K00175151	〃 〃 〃 〃 150pF (DD106SL151J50V)
C7005	K00175181	〃 〃 〃 〃 180pF (DD106SL181J50V)
C7022,7031–7033, 7035	K10176102	〃 〃 〃 B 0.001μF (DD104B102K50V)
C7026	K13179008	〃 〃 〃 F 0.01μF (DD106F103Z50V)
C7011,7012,7018, 7021,7023,7025, 7027	K13179009	〃 〃 〃 〃 0.047μF (DD110F473Z50V)
C7016,7017	K50177154	Mylar 50WV 0.15μF (50F2U154M)
C7015,7019	K70120007	Tantalum 16WV 6.8μF (489D685X0016C1)
C7028	K40109005	Electrolytic 10WV 10μF (ECE-A1AK100)
C7024	K40089002	〃 6.3WV 33μF (ECE-A0JK330)
C7020	K40129007	〃 16WV 100μF (16RE100)
		TRANSFORMER
T7001	L0021377	
T7002	L0021376	
		INDUCTOR
L7001	L1020015	
L7002	L1020032	
L7003	L0021386	
L7004	L0020824	
L7005	L0021385	
		RELAY
RL7001	M1190002	FBR211AD012M
		TP TERMINAL
	Q5000036	TP-G
		RECEPTACLE
J7001	P1090192	FM-MR
J7002	P1090005	S-G8050
	Q9000192	THERMAL CONDUCTOR for Q7001
	R4083841A	HEAT SINK
	R0100540A	HEAT SINK COVER

*** * * 21–28 MHz MAIN CHASSIS * * ***

Symbol No.	Part No.	Description
		IC
Q7501	G1090294	μPC7808H
	Q9000192	Thermal conductor
	S5000065	Washer